

TOSHIBA

STEREO CASSETTE DECK

PC-X80AD



SPECIFICATIONS

Drive system:	Two-motor belt-drive	Fast-forwarding/rewinding time:	About 70 seconds (C30)
Motors:	FG servomotor and DC motor	Semiconductors:	12 ICs, 71 transistors and 73 diodes
Recording/playback head:	AS (all-sendust) head	Input terminals (sensitivity/impedance):	Microphone: 0.25 mV/600 ohm to 10K ohm
Erasing head:	AF (double-gap ferrite) head		Line: 70 mV/50K ohm
Frequency characteristic:	20 ~ 20,000 Hz (±3 dB, chrome tape)	Output terminal (output/impedance):	Line: 0.4V/50K ohm
Total SN Ratio:	80 dB (with adres) (Line peak level WTD, chrome tape)	Power source:	Headphone: 0.4 mW/8 ohm
Distortion:	0.3% (0 dB, 400 Hz, chrome tape)	Power consumption:	220/240V AC, 50 Hz
Wow and flutter:	0.03% (WTD RMS)	Outside dimensions:	45W
Bias frequency:	85 kHz	Weight:	(W)420 x (H)148 x (D)384mm
			12 kg

Specifications are subject to change without notice.

TE, TU

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1. OPERATING CONTROLS

FRONT VIEW

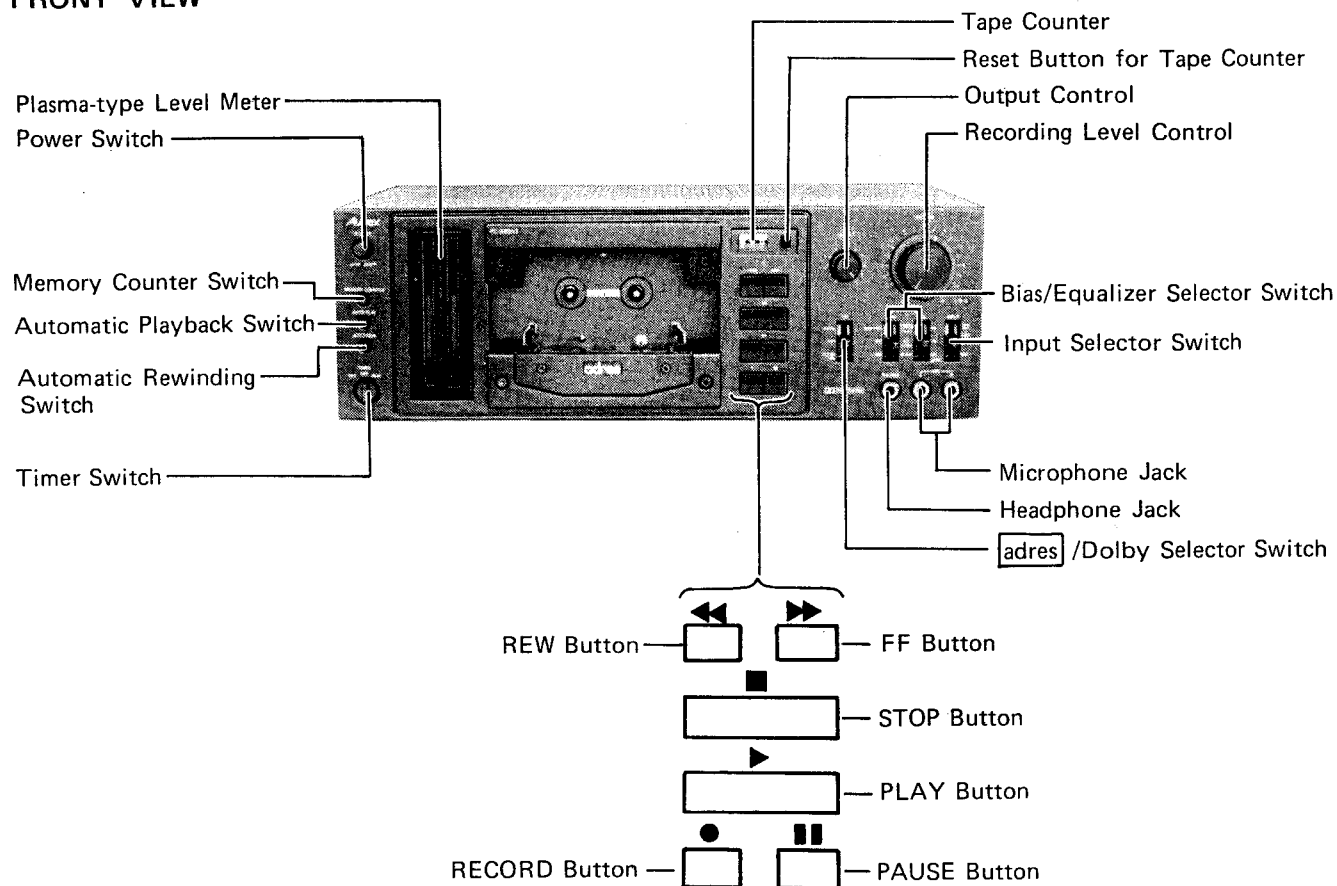


Figure 1.

REAR VIEW

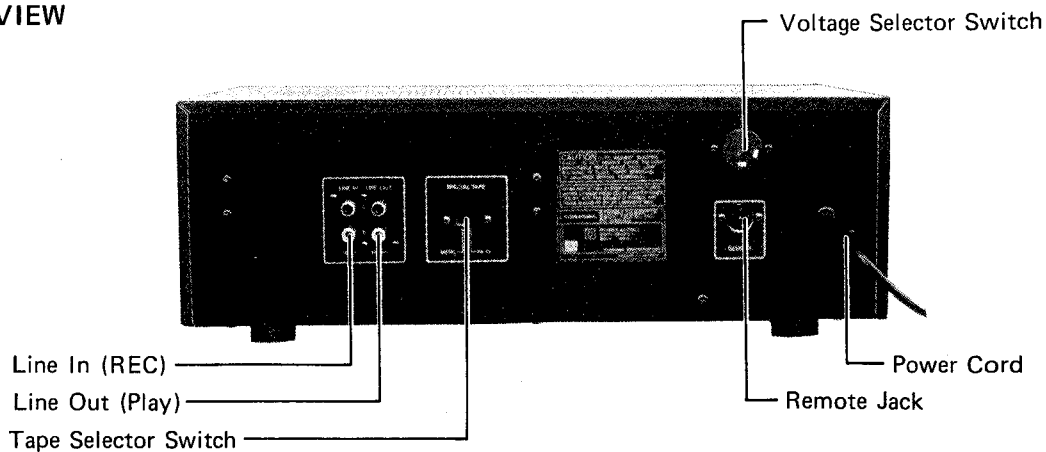


Figure 2.

2. DISASSEMBLY INSTRUCTIONS

FRONT PANEL SCREWS

1. 4 screws (A) is for use of removing the mechanism assembly.

* Never touch them but for removing mechanism.

2. 2 screws (B) is for use of removing the head cover. Use them to replace or adjust the head.

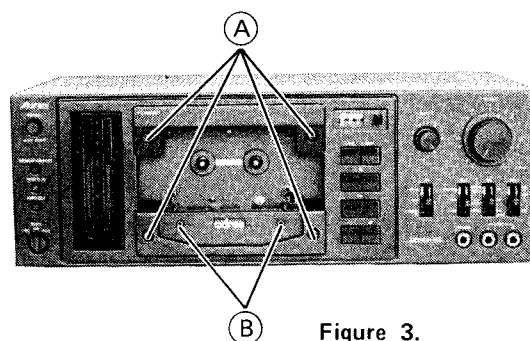


Figure 3.

TOP COVER REMOVAL

1. Remove 6 screws (C), (D) to take out the top cover.

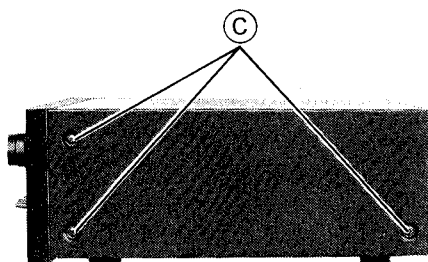


Figure 4.

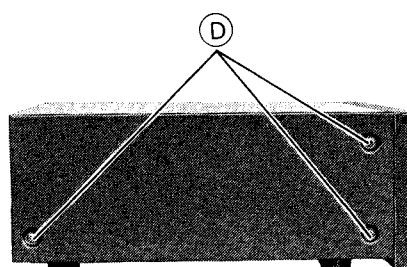


Figure 5.

BOTTOM COVER REMOVAL

1. Remove the top cover.
2. Remove 8 screws (E).
3. Remove 1 screw (F) to detach the bottom cover.

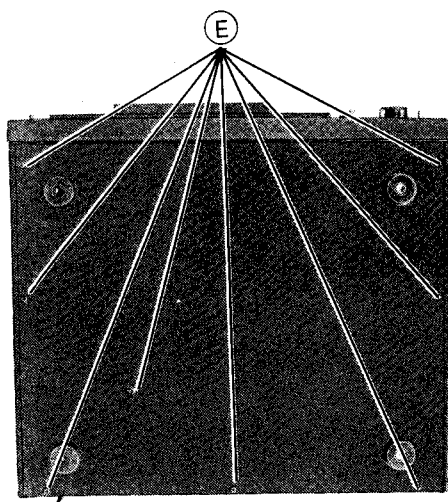


Figure 6.

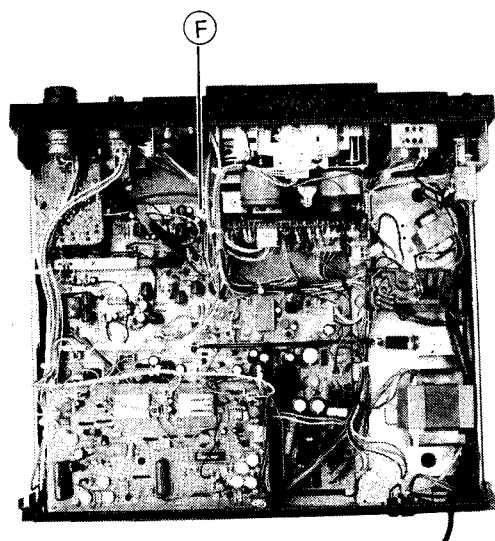


Figure 7.

MOTOR REMOVAL

1. Remove the logic P.C. Board (with 4 screws ⑥).
2. Remove 4 screws ⑦ to detach the motor.

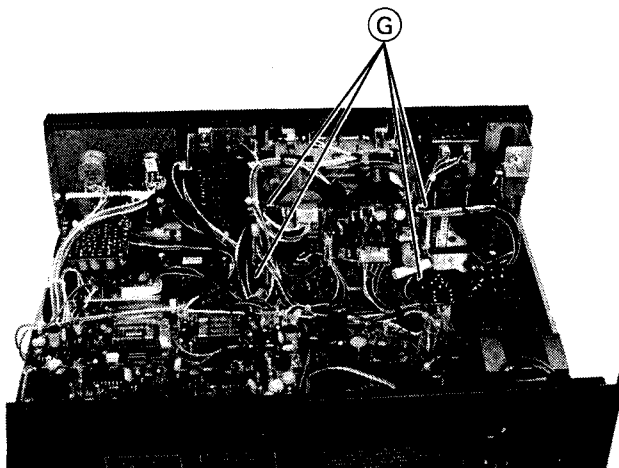


Figure 8.

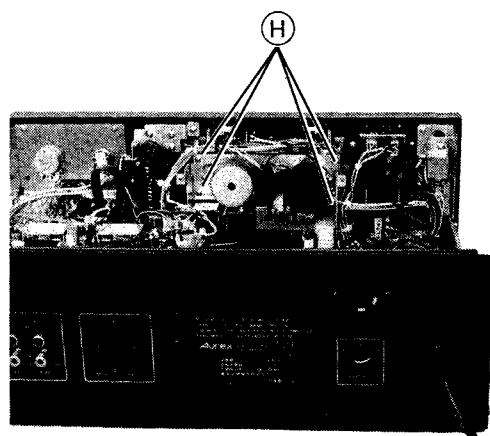


Figure 9.

CHECK OF FRONT PANEL PARTS

1. Removing 4 screws ①, ② located on the both sides, shift the panel in the arrow direction ③
2. The front panel can be thoroughly slanted.

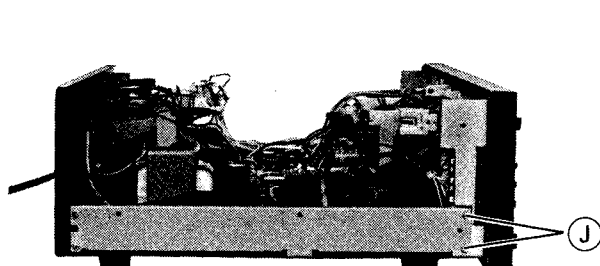


Figure 10.

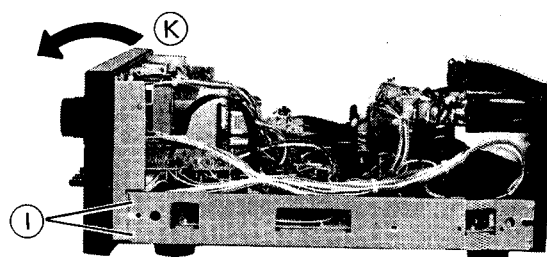


Figure 11.

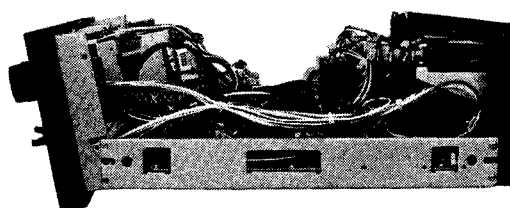


Figure 12.

3. ALIGNMENT INSTRUCTIONS

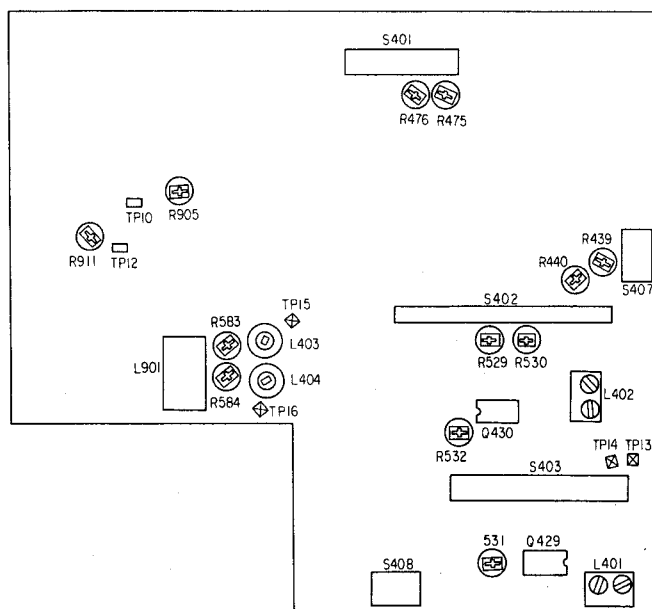


Figure 13. TOP MAIN P.C. BOARD

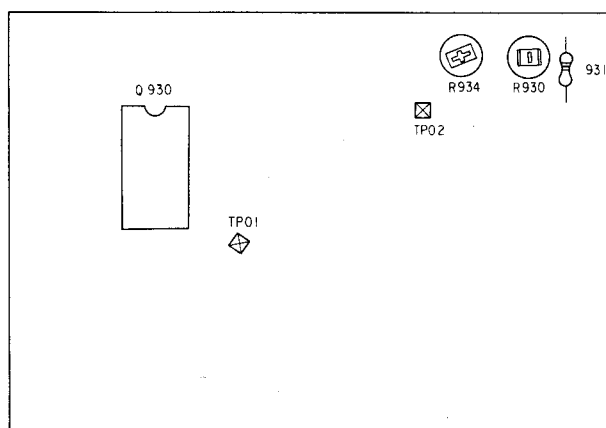


Figure 14. LOGIC P.C. BOARD

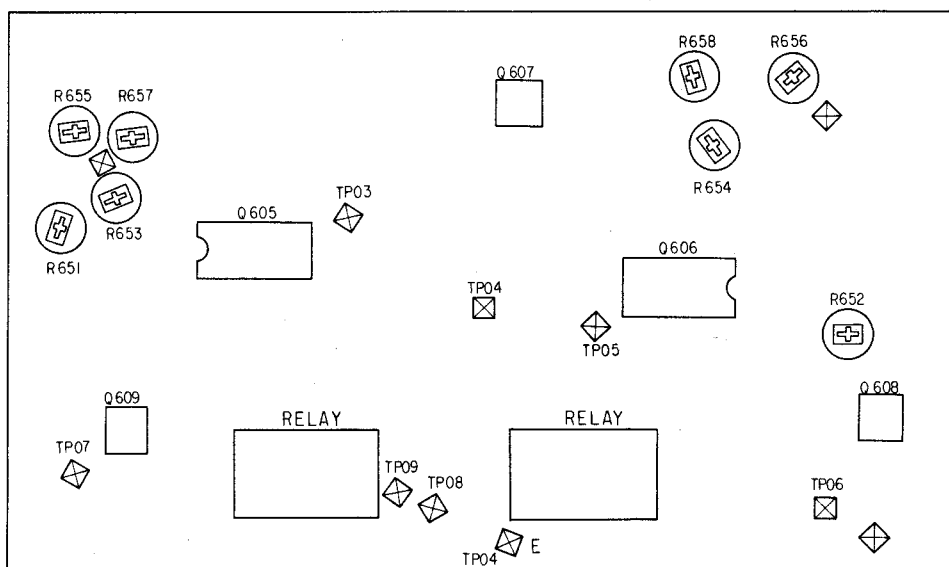
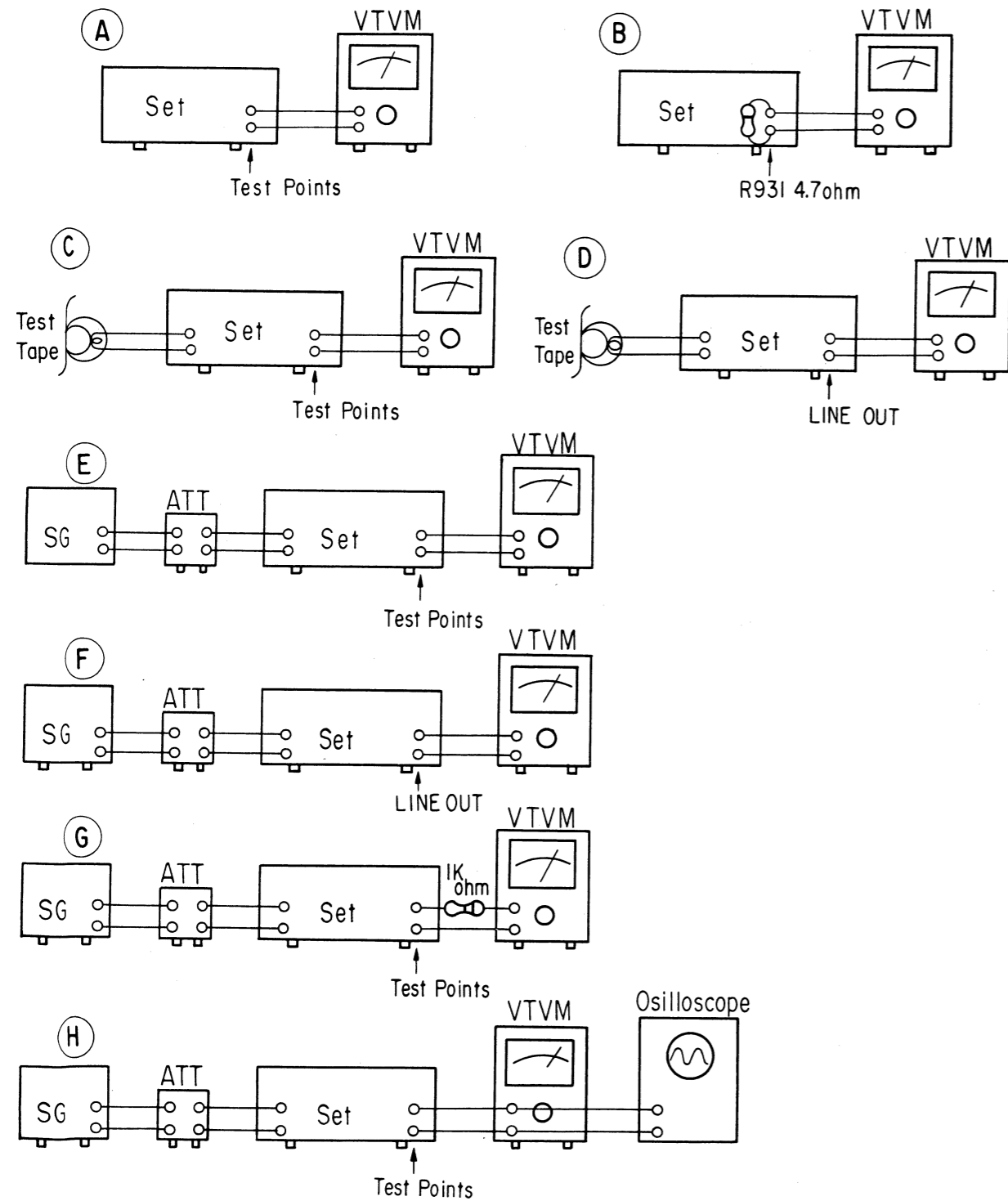


Figure 15. ADRES P.C. BOARD

MEASURING JIG CONNECTION



ADJUSTMENTS

Equipments

1. Test tape
2. Resistance attenuator
3. VTVM
4. Oscilloscope
5. Signal generator

	Adjustment item	Volume position		Switch position				Input frequency ATT	Tape used	Test point	Adjustment	Adjustment value	Connection
		REC	OUT	INPUT	BIAS	EQ	NR						
Main circuit	Voltage adjustment									TP10	R905	$+14 \pm 0.2V$	A
										TP12	R911	$-14 \pm 0.2V$	A
	Playback sensitivity adjustment								MTT-150	TP13 TP14	R439 R440	$580 \pm 10mV$	C
	Bias leak adjustment	MIN			NOR	NOR				TP15 TP16	L403 L404	MIN	A
	Line input sensitivity adjustment		MAX	MPX OFF			OUT	1 kHz -20 dB		TP13 TP14	R475 R476	$580 \pm 10mV$	E
	Rec./Play frequency characteristic adjustment		MAX					333 Hz - 15 kHz -43 dB	AC-511	LINE OUT	R583 R584	$0 \sim -1 dB$	D, F
	Rec./Play sensitivity adjustment		MAX		CrO ₂	CrO ₂		1 kHz -20 dB	AC-511	TP13 TP14	R531 R532	$580 \pm 10mV$	C, D
	Rec./Play sensitivity adjustment at ADRES						adres	1 kHz -26 dB	AC-511	TP13 TP14	R529 R530	$290 \pm 10mV$	C, D
ADRES circuit	ENCODE adjustment							1 kHz -26 dB		TP08 TP09	R655 R656	$290 \pm 10mV$	E
	Distortion ratio adjustment							1 kHz -26 dB		TP08 TP09	R651 R652	MIN	H
	Limiter adjustment	MAX	MAX	MPX OFF	CrO ₂	CrO ₂	adres	1 kHz - 10 kHz -26 dB		TP08 TP09	R657 R658	$1 kHz \rightarrow 10 kHz$ -2 dB	E
	Voltage check							1 kHz -26 dB		TP03 TP05 TP04 GND		-2mV	G
	Decode adjustment							1 kHz -26 dB		TP03 TP05	R653 R654	+2mV	G
Logic circuit	Voltage adjustment									TP02	R934	$+7.5 \pm 0.2V$	A
										Both terminals of R931	R930	$+1.3 \pm 0.2V$ -0	B
Head azimuth adjustment			MAX	MPX OFF	NOR	NOR	OUT		MTT-111	LINE OUT	Head azimuth adjusting screw		D

Figure 16.

Figure 17.

5. TECHNICAL POINTS

PLASMA Bar Graph Meter Block Diagram

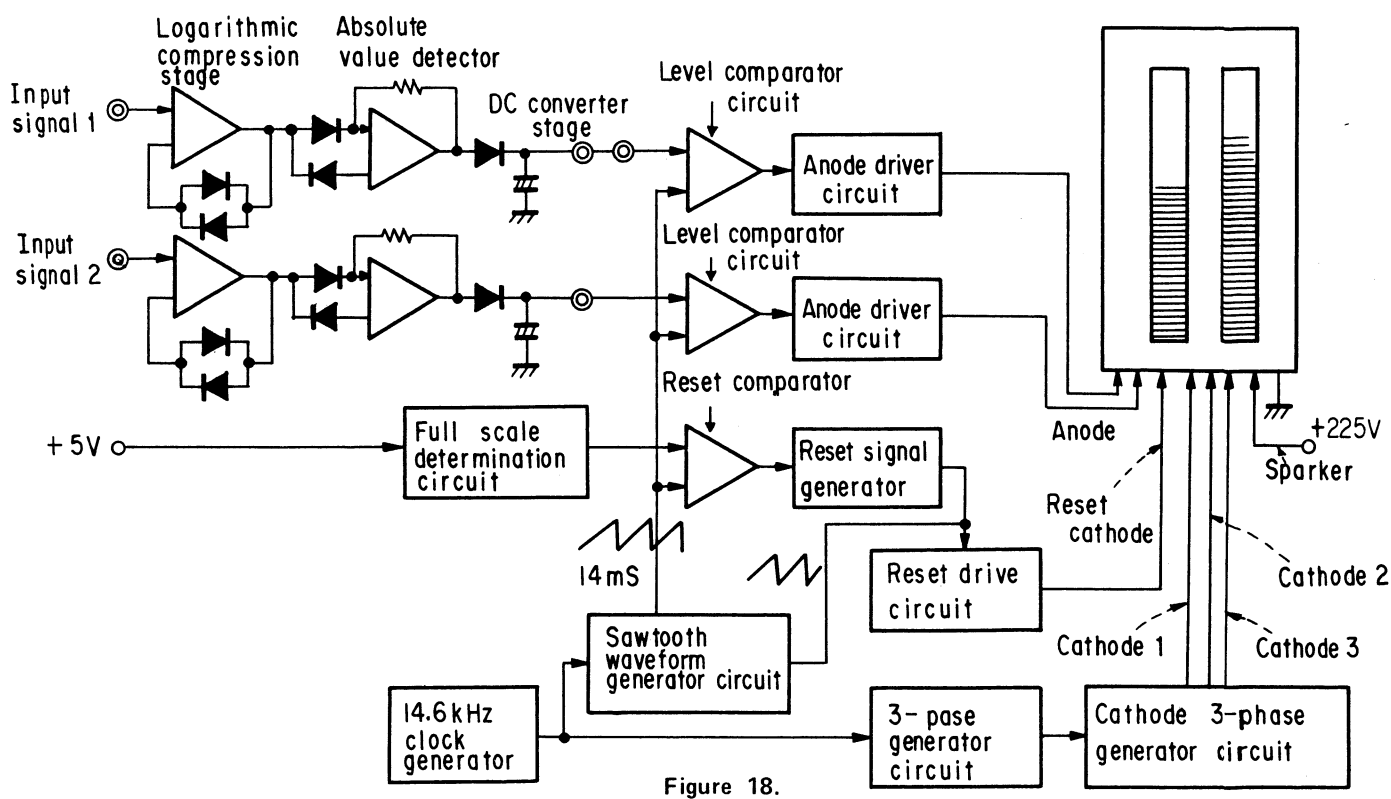


Figure 18.

Outline of Operational Principles

- (1) The neon discharge tube electrodes are arranged in the following manner

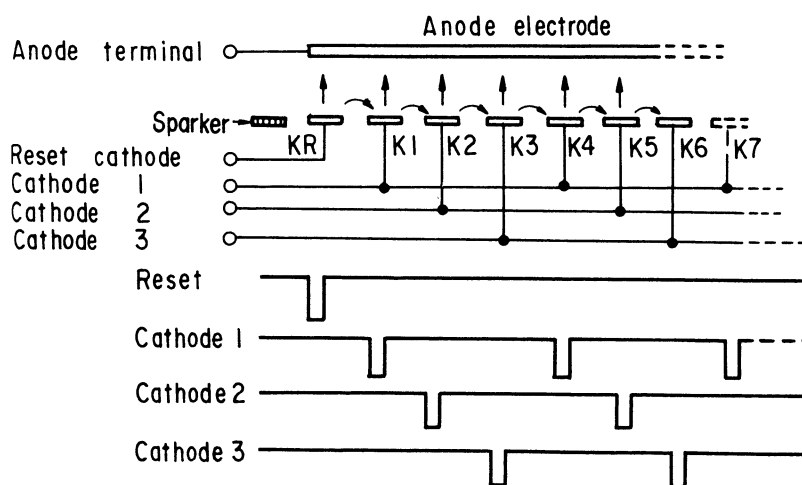


Figure 19.

Self-Scanning System

- A. Every third cathode is connected to each other.
- B. The sparker is normally lit up.
- C. Anodes are turned on at the same time a pulse signal is applied to the reset electrode.
- D. When a pulse is then applied to cathode K1, the electrical discharge shifts to K1. Then sequential application of pulses to K2, K3, K4, ... results in the discharge being moved along in response. This mode of operation is known as the self-scanning system.

- (2) A sawtooth waveform is also generated synchronized with the time for the bar graph to light up from 1 to 200.
- (3) The input voltage is then compared with the sawtooth waveform, and an output is retrieved only during the time corresponding to the input voltage level. This voltage is then applied to the anode, resulting in only the number of neon bars corresponding to the input level being lit up.
- (4) This operation is repeated 70 times per second to obtain the display.

PC-X80AD Bar Graph Operation

When failures occur in tape decks, the failure is often indicated by abnormal meter behaviour. And usually, these failures are not due to a defective meter, but to trouble in the amplifier and other stages. The neon bar graph meter employed in the PC-X80AD, plus the meter driver circuit forms a very expensive component part which may be subject to the following problems.

Problems Considered to be due to Failures in the Actual Meter Unit

The lowest sparker fails to light up.	<ul style="list-style-type: none"> * High voltage (+225V) not applied. * Defective discharge tube.
Occasional flickering in the lamps.	<ul style="list-style-type: none"> * Unstable driver circuit scanning. * Defective mercury diffusion in the discharge tube.
Although an input signal is applied, stops at a certain level, and lights up to a brightness about twice the normal level.	<ul style="list-style-type: none"> * Driver circuit scanning stopped (only when problem occurs in both left and right channel).
Both left and right channels light up to full scale when no input signal applied.	<ul style="list-style-type: none"> * Faulty application of voltage to logarithmic compression circuit.
Display value varies with time.	<ul style="list-style-type: none"> * Defective transient characteristics in the logarithmic compression circuit (occurs simultaneously in both left and right channels).

Note: Also examine the meter unit mini-connector in order to be sure.

(1) Only the sparker should light up after the signal connector has been disconnected.

(2) Power supply connectors:-

Black: ground

Red: +14V

Blue: -14V

Orange: +225V \pm 15V

METER ADJUSTMENT

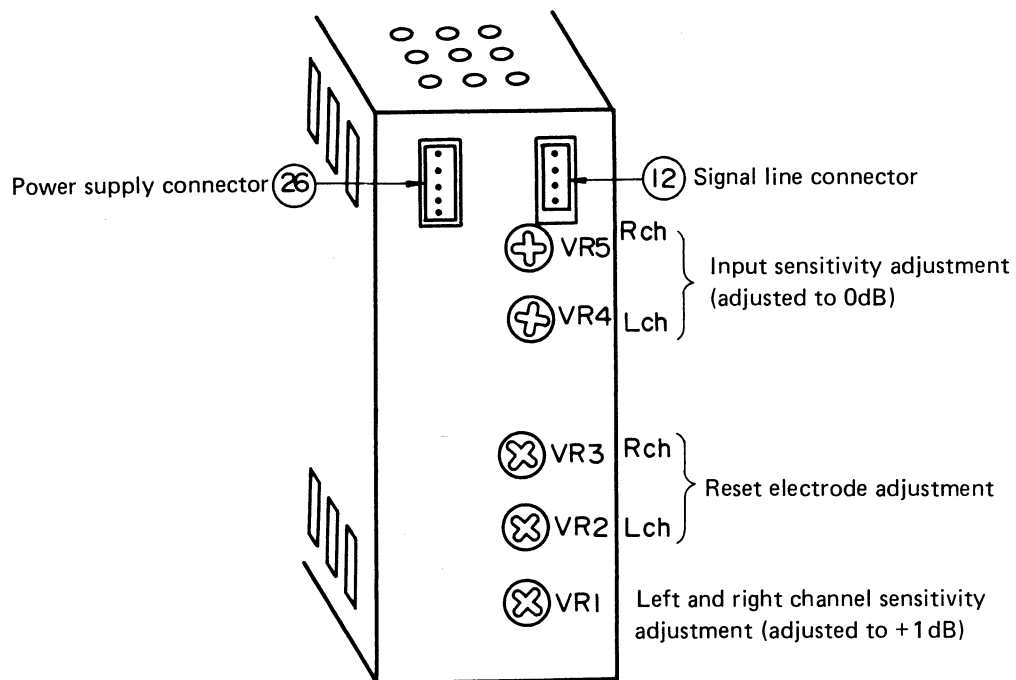
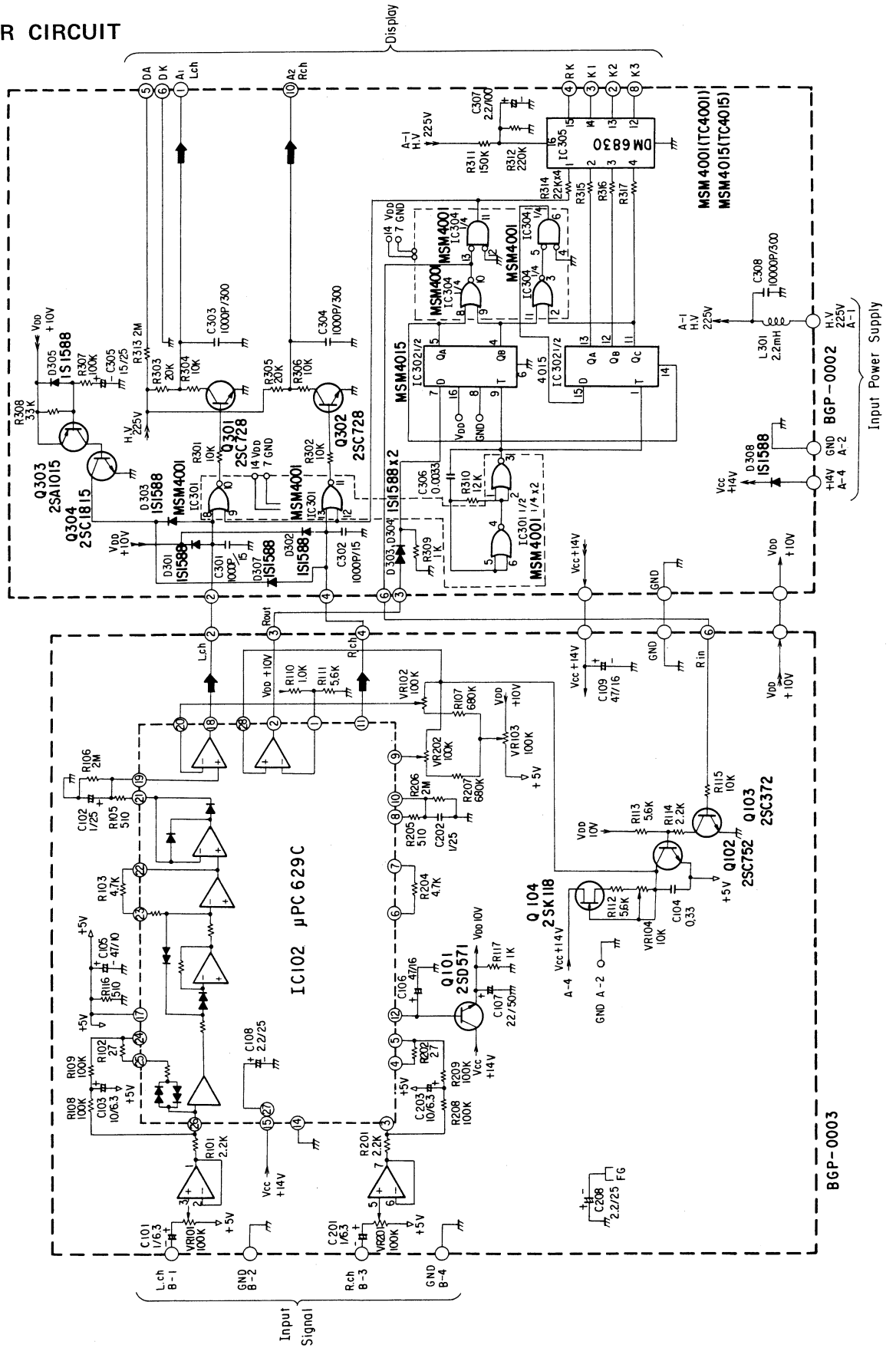


Figure 20.

PLASMA Bar Graph Meter Adjustment

1. Turn the input sensitivity adjustment controls VR4 and VR5 full around clockwise.
2. Apply an input signal of 400mV, and adjust the sensitivity adjustment control VR1 to obtain a meter reading of +1dB.
3. Reduce the input signal by 42dB from the 400mV level, and adjust the offset controls VR2 and VR3 so that only the reset electrode (lowest scale reading in the meter) is turned on.
4. Increase the input signal back to 400mV, and adjust the sensitivity adjustment VR so that the meter scale reads 0dB.

PLASMA METER CIRCUIT



(1) SOLENOID ADJUSTMENT (PC-D15, PC-X80AD)

When replacing solenoid or situation adjustment of solenoid is required because of the malfunction of head slider, proceed as follows:

- 1 Install the cassette without tape and set the unit to PLAY mode.
- 2 Adjust the situation of 2 screws for solenoid mounting.
- 3 Adjust the situation of solenoid so that the interval between PLAY Lever 1 and PLAY Lever 2 is 0.5mm and fix the solenoid mounting screws.
- 4 Make certain that some clearance is kept in the point of coincidence of the head slider on the top of the mechanism and pinch roller lever. (normally 0.7mm)

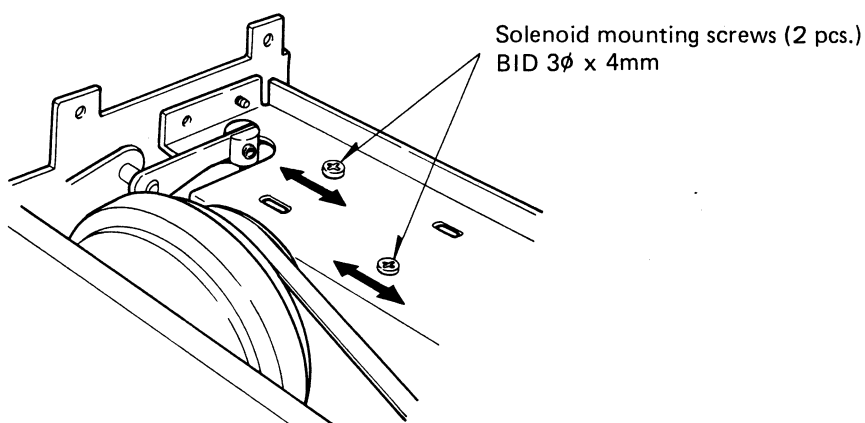


Figure 22. Solenoid Mounting

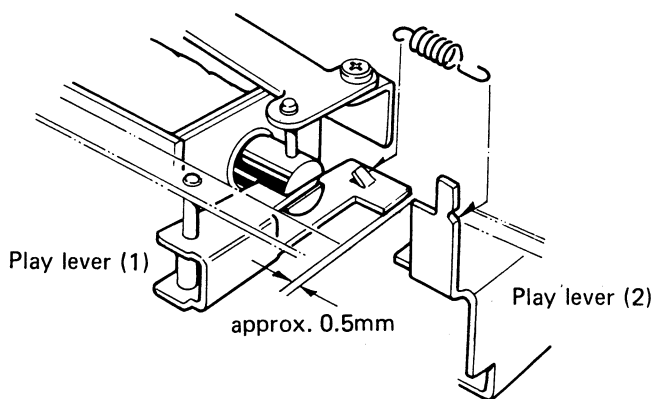


Figure 23. Play Lever

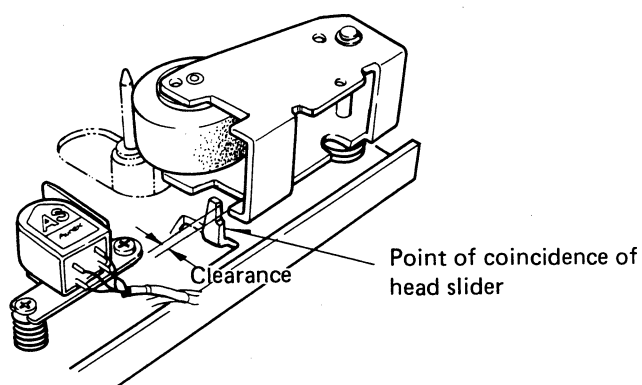


Figure 24. Point of Pinch Roller Lever

(2) PLAY TORQUE ADJUSTMENT (PC-D15, PC-X80AD)

- When the play torque does not coincide with rating value or replacing the winding intermediate pulley, proceed as follows:

1 Move the situation of torque adjusting board on the intermediate pulley assembly as illustrated in Fig.25 from the upper side of the set using a pincette, etc.

In the pulley there are 3 adjusting steps one of which is for coincidence. Torque adjusting board should be moved at this step. The torque changes by 5–7g.m. every one step.

2 Adjust the torque for 40–60 g.m. following the step mentioned above.

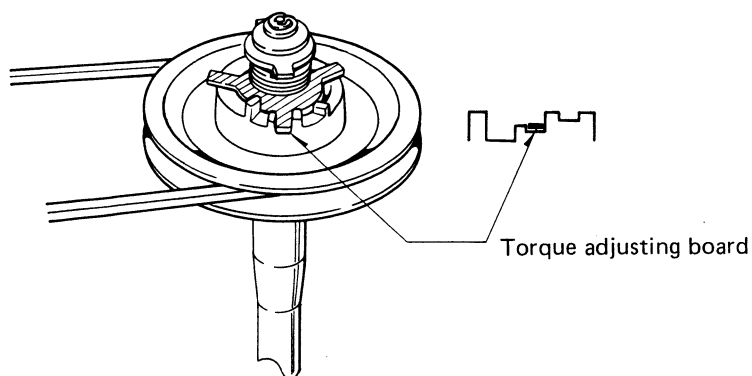
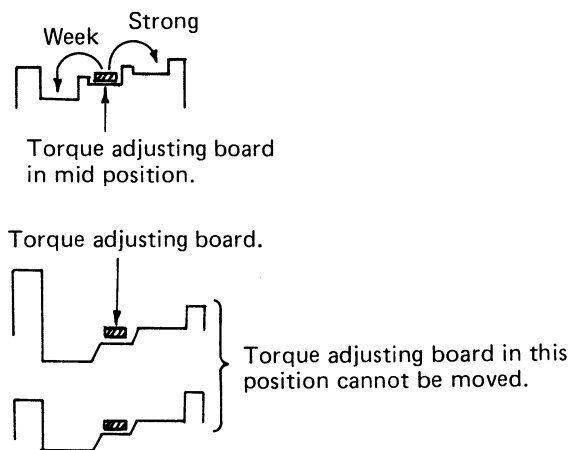


Figure 25. Winding Intermediate Pulley Ass'y



IC TERMINAL (TC9121P) FUNCTION

TC9121P Terminals and Corresponding Functions

Pin No.	Terminal Symbol	Function
1	GND	Ground terminal.
2	REW	Tape rewind command signal input.
3	F.F.	Tape fast forward command signal input.
4	PLAY	Tape playback mode command signal input. Recording mode commenced when switched to "L" level together with the REC terminal.
5	REC	Tape recording mode command signal input. Effective only when switched to "L" level together with the PLAY terminal.
6	STOP	Tape transport stop command signal input.
7	PAUSE	Tape transport temporary stop and restart command signals input. Auto-set and reset type which is effective only during stop, play and recording modes.
8	A.REW	Input designating operational mode when "L" signal applied to Y or Z input during playback or recording mode. Tape transport stopped by above signal when terminal set to "H" level. Tape transport stopped temporarily, and then switched to rewind mode automatically when terminal set to "L" level. Note: If Z is switched to "L" level during fast forward mode, tape transport is stopped irrespective of the A.REW setting.
9	A.PLAY	Input designating operational mode when "L" signal is applied to the Z or X input during rewind mode. When terminal is switched to "H" level, tape transport is stopped by the above signal. When terminal is switched to "L" level, tape transport is stopped temporarily before being switched to playback mode automatically.
10	X	Input terminal employed to designate either stop or playback mode (A.PLAY setting) during rewind mode. By connecting up to a memory equipped counter, tape transport may be switched to stop mode or playback mode at any desired position during rewind. The X input will only receive inputs during rewind mode.
11	Y	Input terminal employed to designate either stop mode or rewind mode (A.REW setting) during playback and recording modes. By connecting up to a memory equipped counter, tape transport may be switched automatically from playback or recording mode to stop or rewind mode at any desired position. Note that the Y input is non-receptive in all other modes apart from playback and recording.
12	Z	Input terminal for signal detecting that tape transport has stopped. "H" level input pulses during transport, and "L" level input pulses when stopped. Controls transport mode when tape stops according to A.REW or A.PLAY settings.
13	OSC	CR determining the oscillator frequency of a single terminal oscillator connected to this terminal. The clock pulse signals generated by the oscillator are employed in determining operational timing within the LSI, and also in the prevention of chattering.
14	INH	When this terminal is switched to "L" level during any tape transport mode, all outputs (except the O.MUT and TAPE END outputs) are blocked, resulting in the tape transport being switched to stop mode. This terminal is employed in setting the warm-up time when the deck is turned on by timer (timer playback and recording modes), and also in the auto-stop function for mechanical tape protection when the power switch is turned off.
15	O.PLAY	"H" output in playback or recording mode.
16	O.REC	"H" output in recording or recording pause mode.

Pin No.	Terminal Symbol	Function
17	O.STOP	"H" output in all modes except stop mode.
18	O.FF.REW	"H" output in fast forward or rewind mode.
19	O.PAUSE	"H" output in pause mode.
20	O.MUT	"L" output in playback, recording, or pause mode. "H" output in all other modes.
21	O.REW	"H" output in rewind mode.
22	O.FF	"H" output in fast forward mode.
23	TAPE.END	"H" level output under normal conditions, but switched to "L" level when tape transport stop is detected by the Z input. Then when any other key is pressed, or the A.REW or A.PLAY mode is commenced, the terminal is returned to "H" level.
24	VDD	Power supply voltage.

IC (TC9121P) BLOCK DIAGRAM

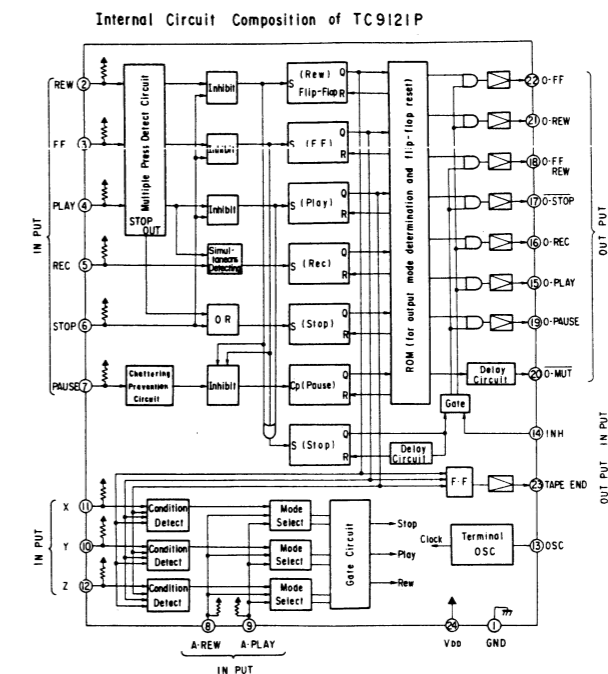


Figure 26.

6. ELECTRICAL PARTS LOCATIONS

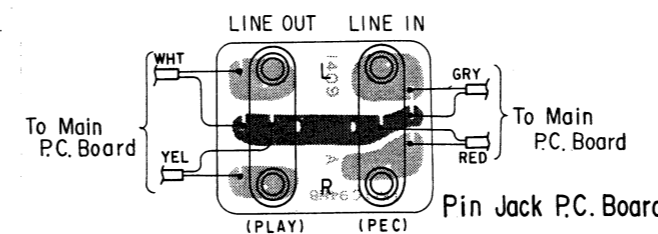
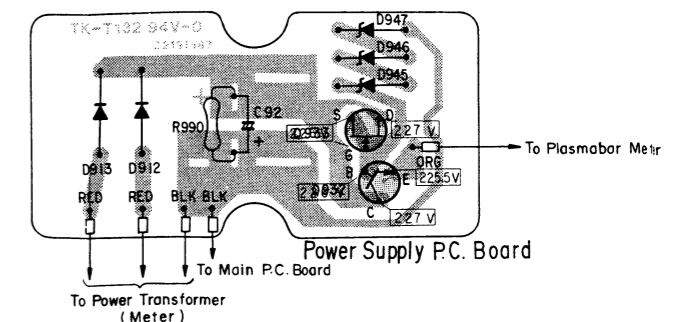


Figure 27. PIN JACK P.C. BOARD



PC-X80AD

PC-X80AD

MAIN P.C. BOARD

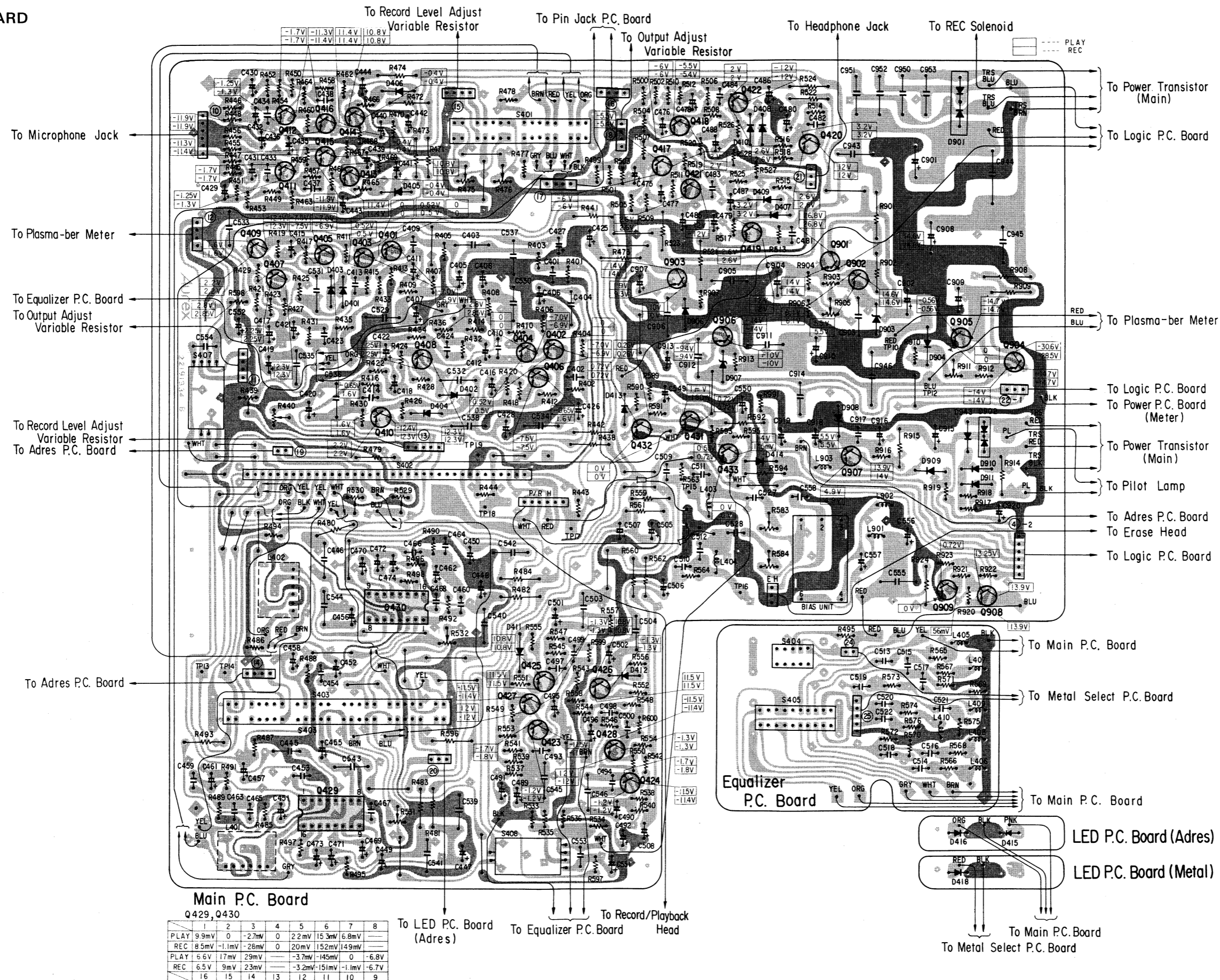


Figure 29.

PC-X80AD

PC-X80AD

MAIN CIRCUIT

MAIN AMP CIRCUIT

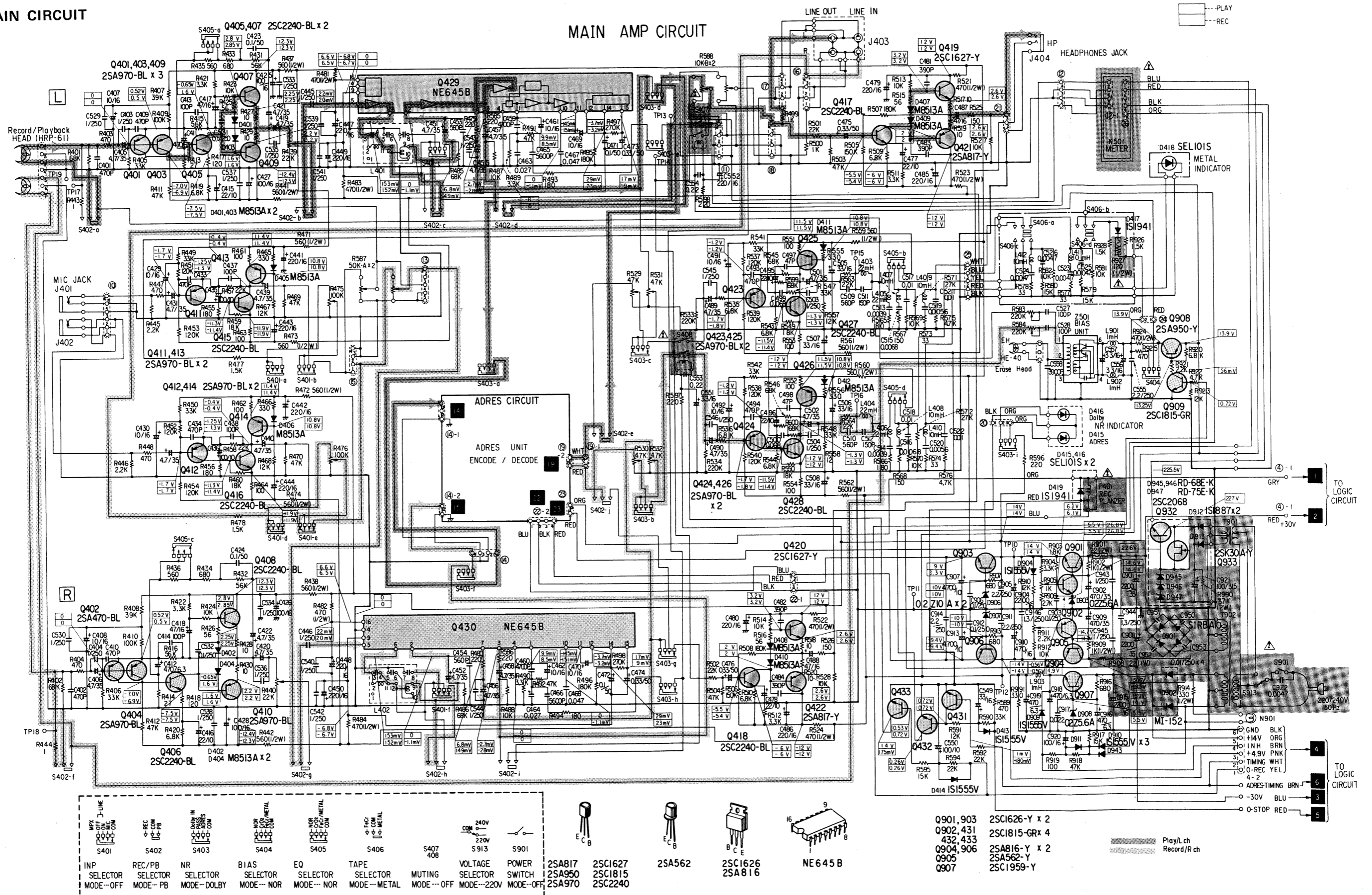


Figure 30.

LOGIC P.C. BOARD

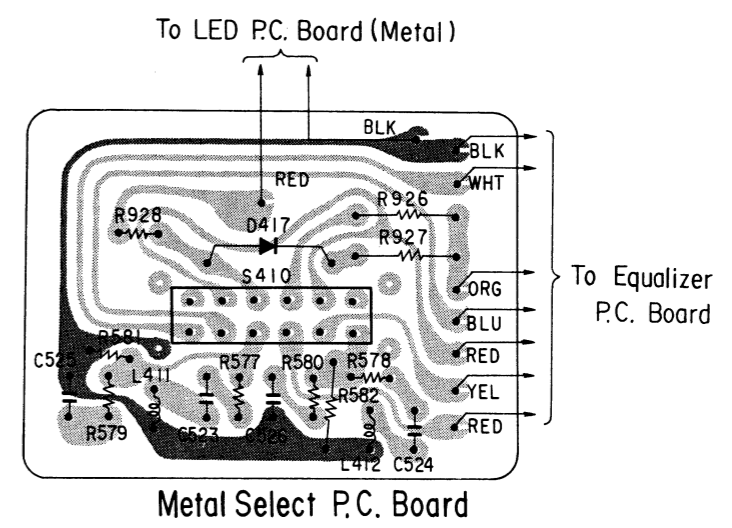
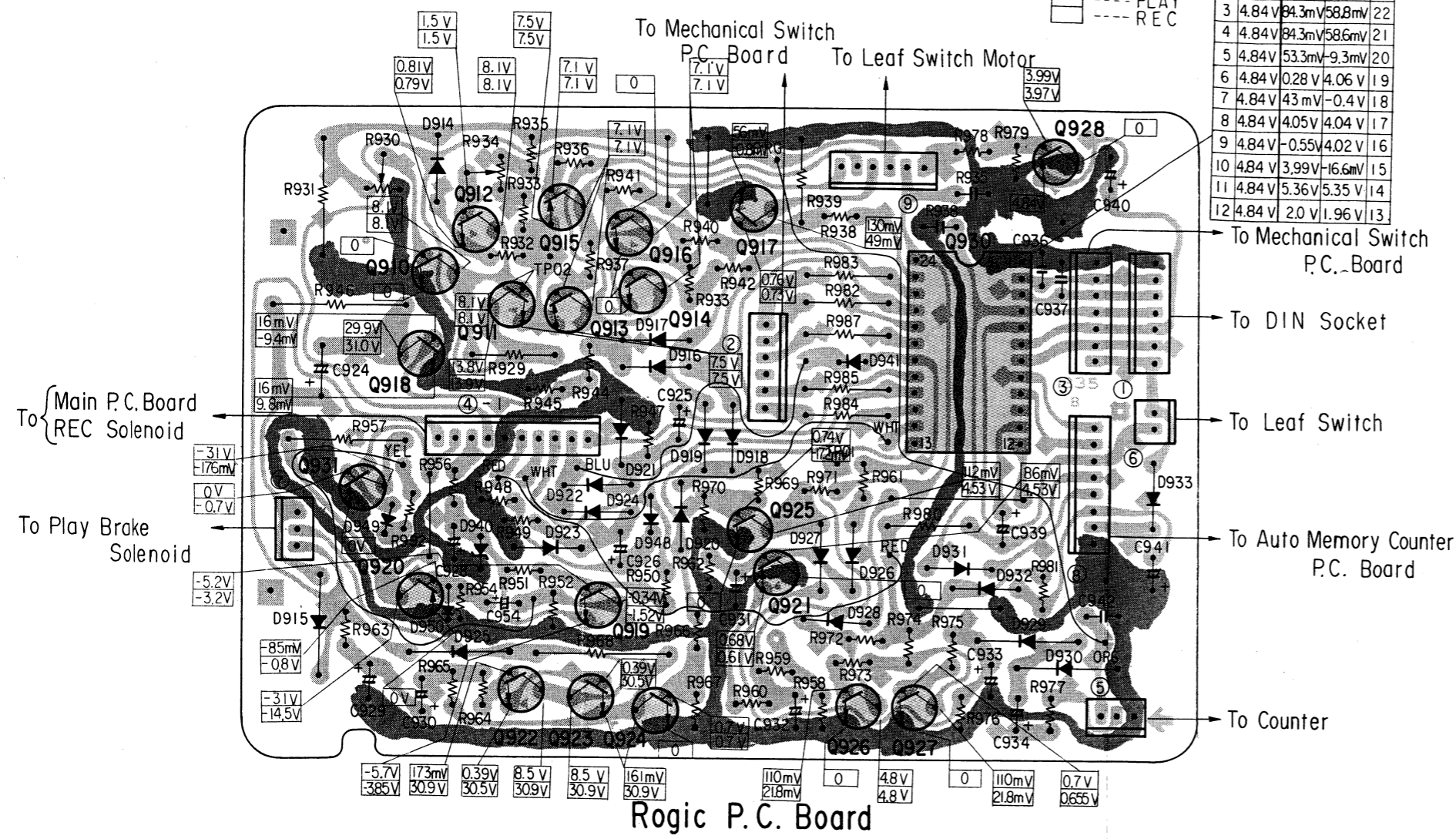


Figure 33. METAL SELECT P.C. BOARD

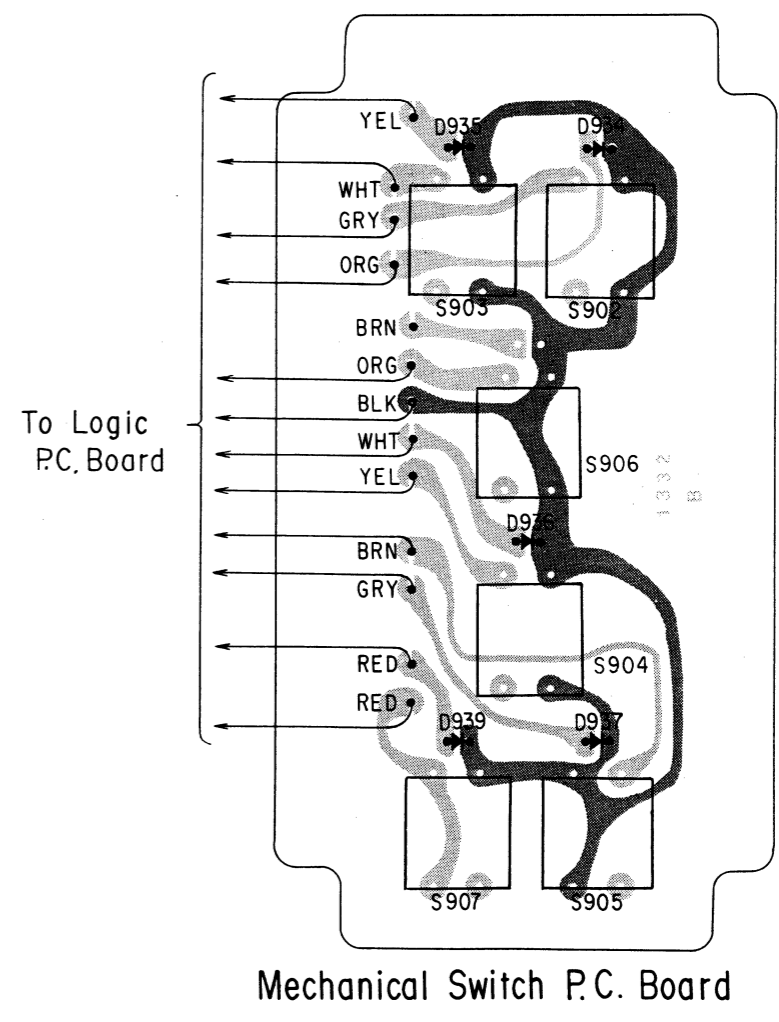


Figure 34. MECHANISM SWITCH P.C. BOARD

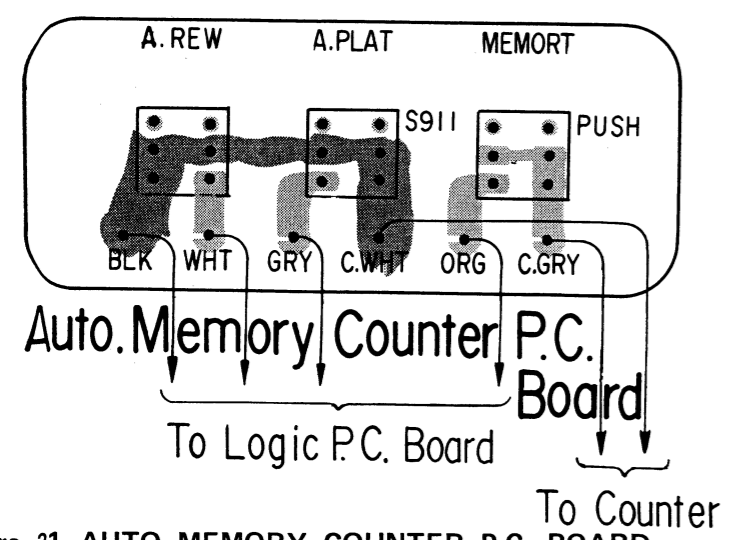


Figure 31. AUTO MEMORY COUNTER P.C. BOARD

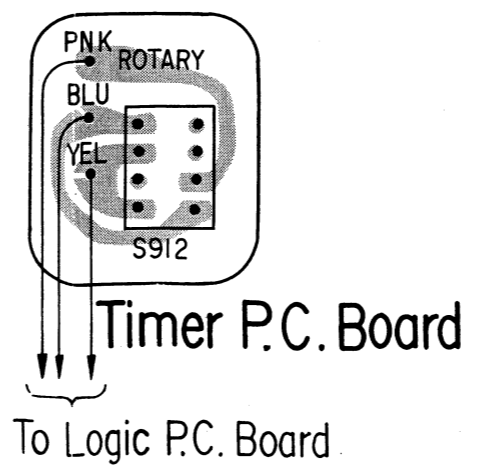
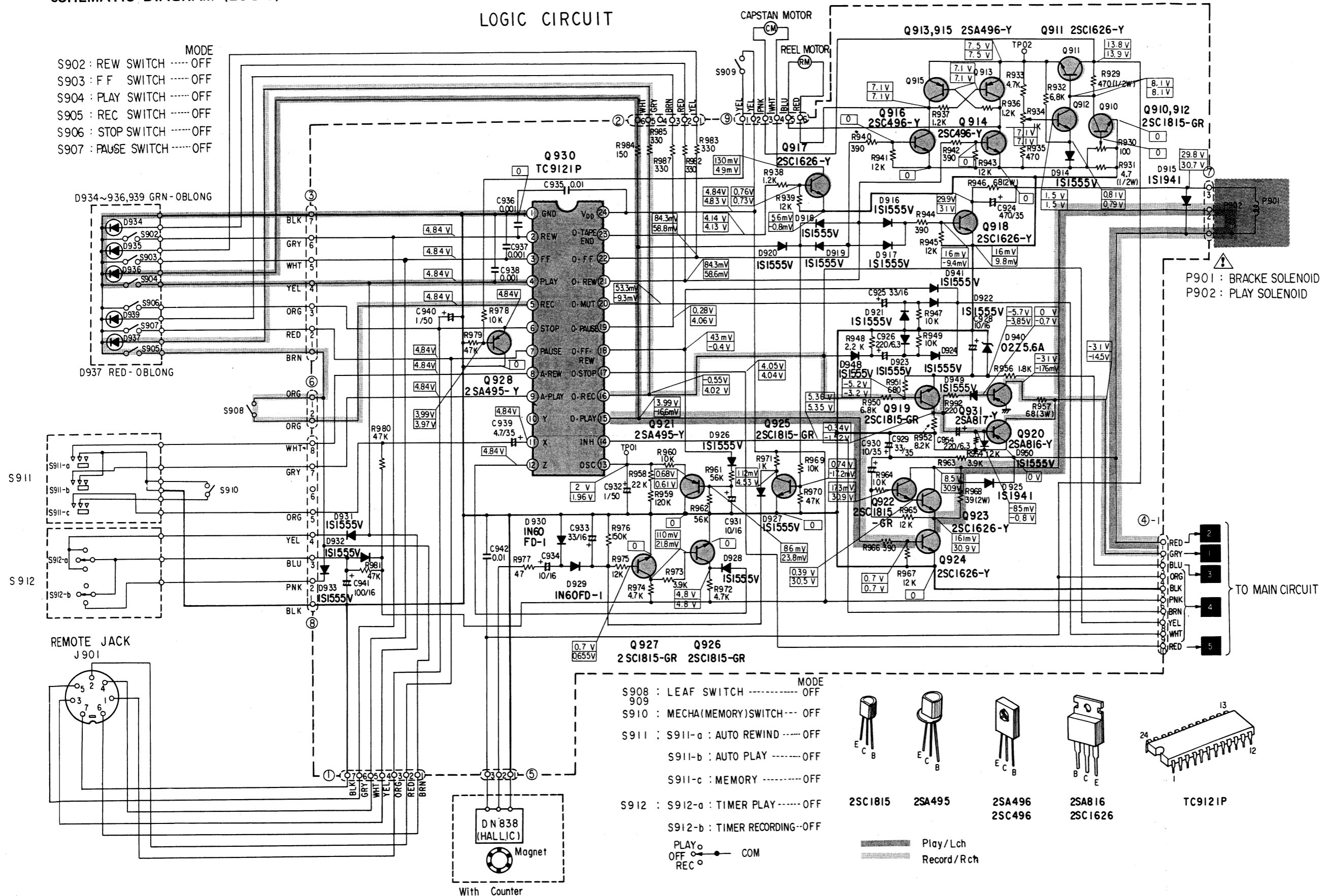


Figure 32. TIMER P.C. BOARD

LOGIC CIRCUIT




CAUTION: The  mark, the symbol No. circled with rectangle in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.

Figure 35.

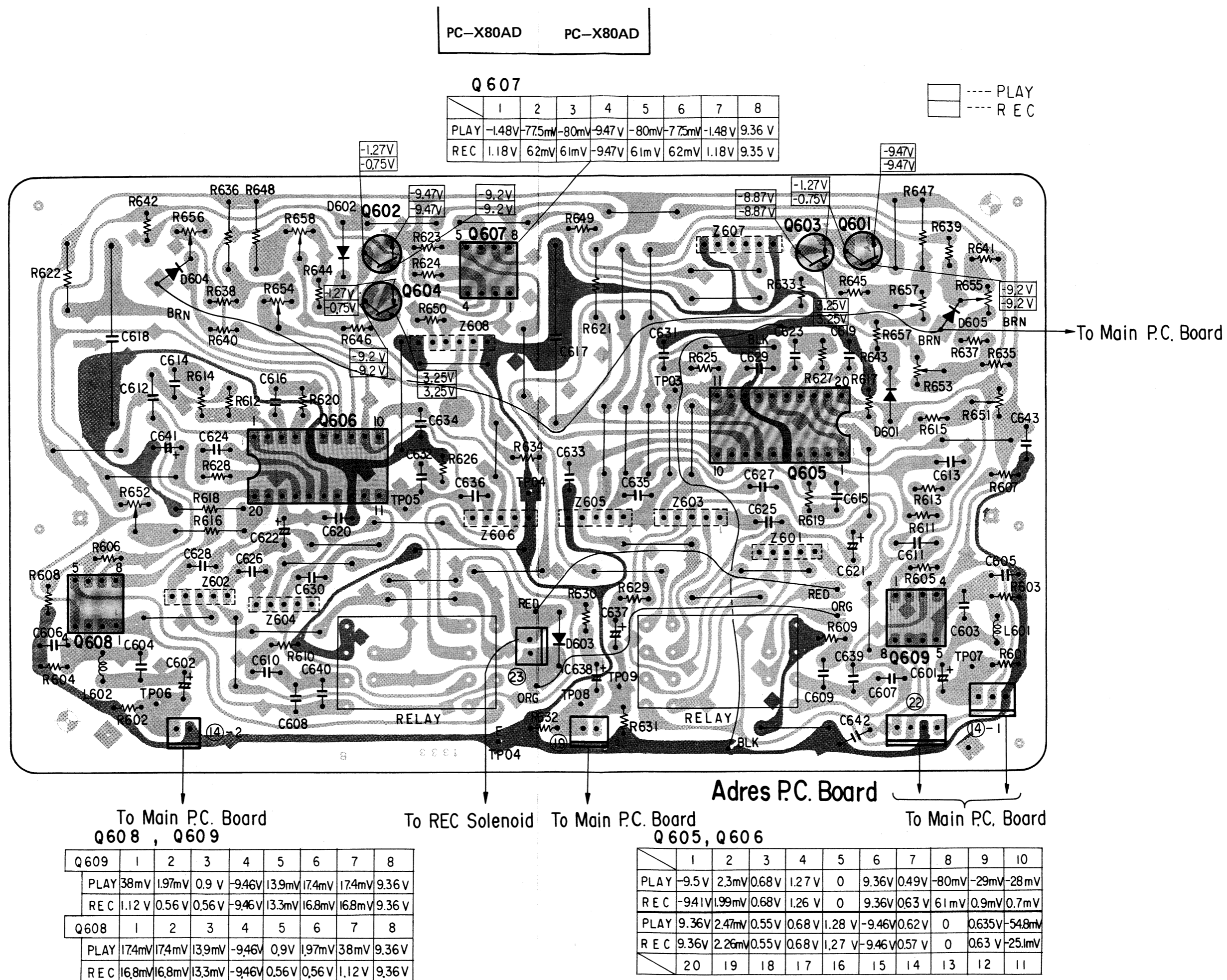


Figure 36. ADRES P.C. BOARD

PC-X80AD	PC-X80AD
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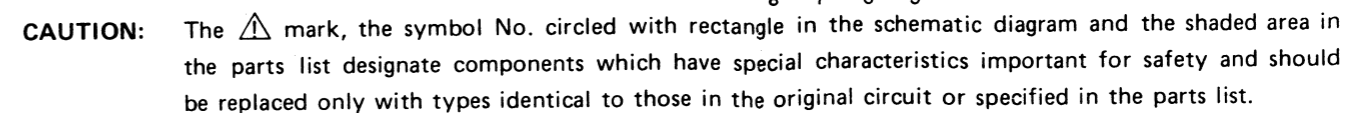


Figure 37.

WIRING

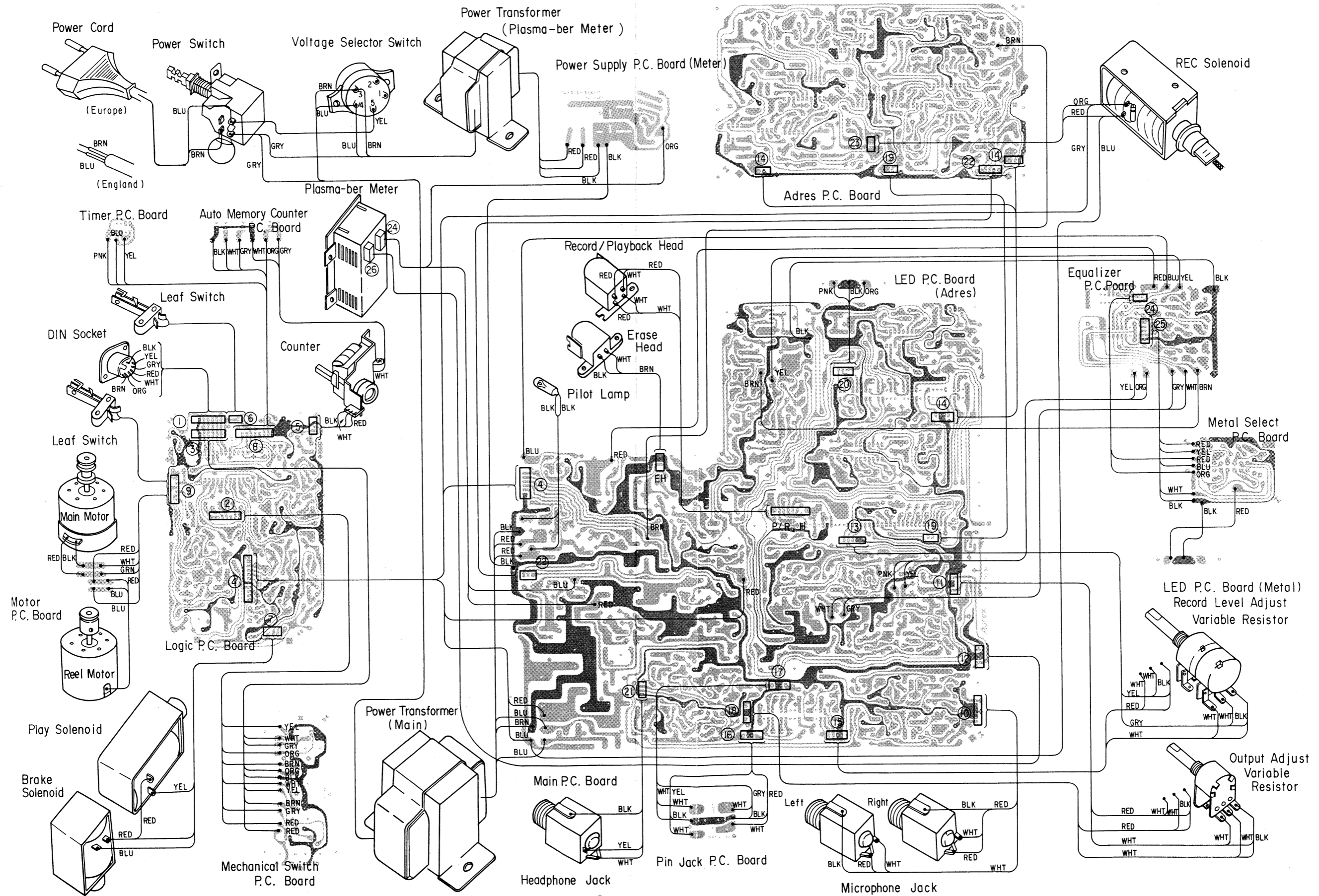
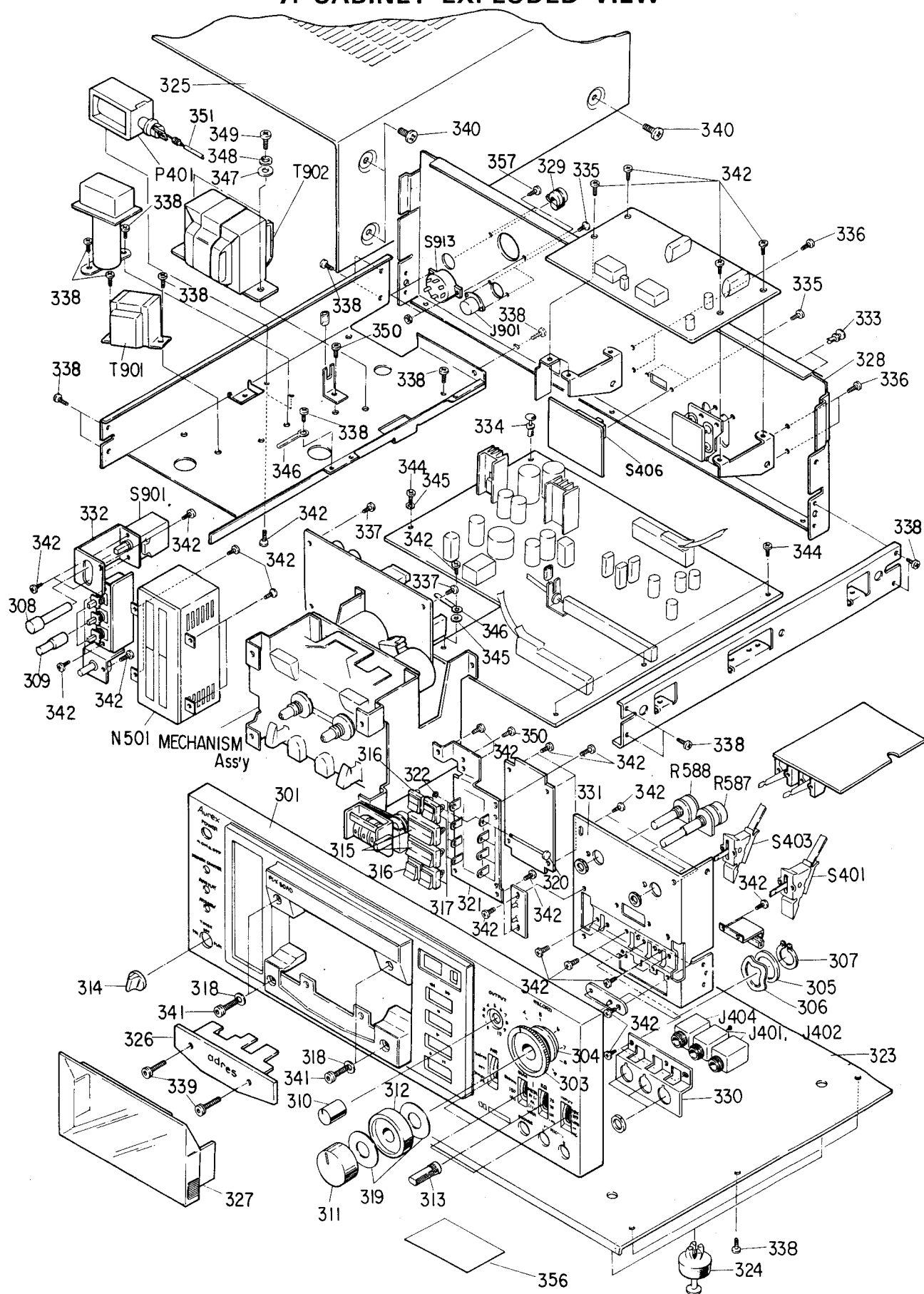


Figure 38.

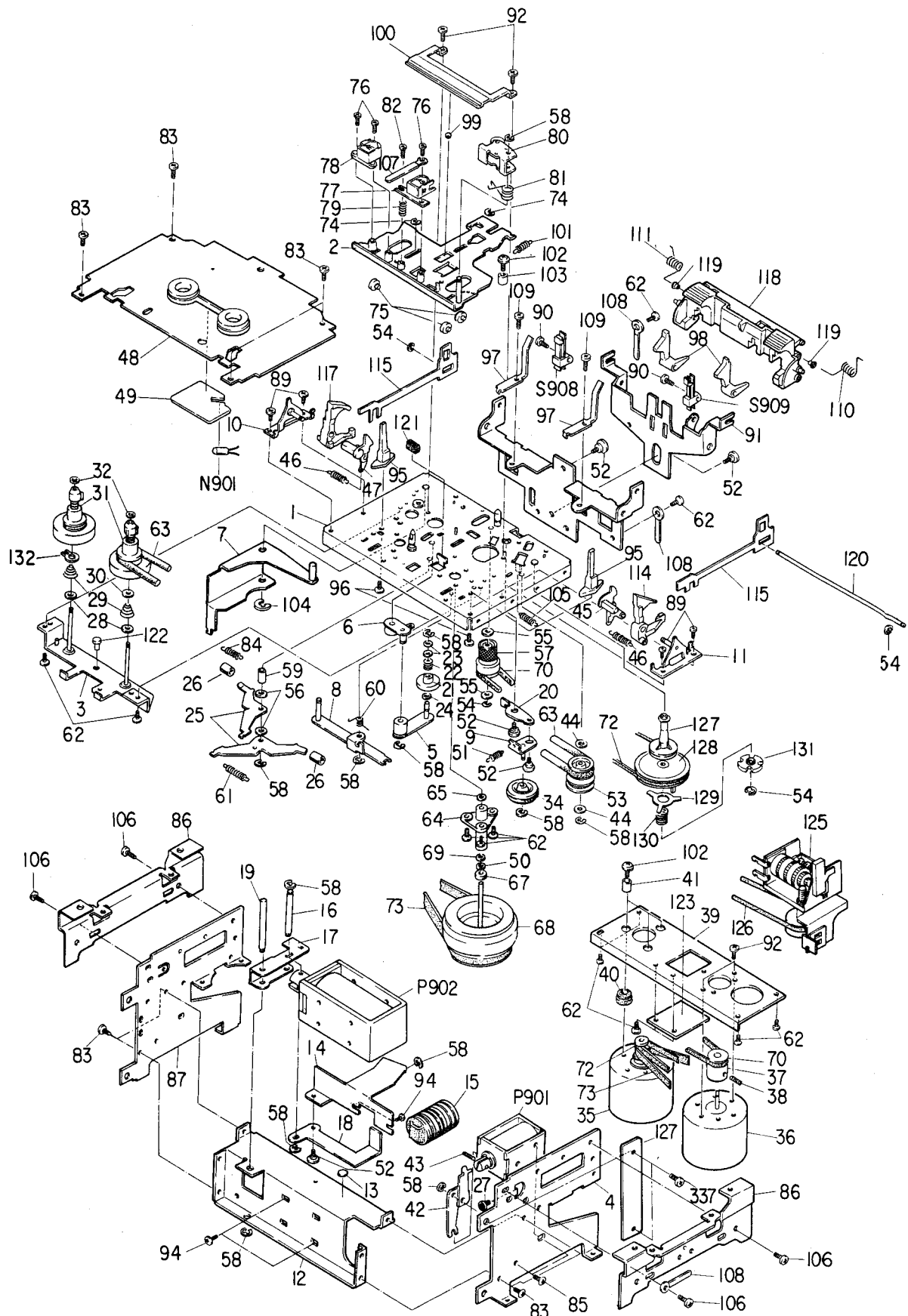
7. CABINET EXPLODED VIEW



NOTE: Excluded parts in the Parts List are not available as replacement parts.

Figure 39.


8. MECHANISM EXPLODED VIEW



NOTE: Excluded parts in the Parts List are not available as replacement parts.

Figure 40.

9. PARTS LIST

CAUTION: The  mark, the symbol No. circled with rectangle in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.

Symbol No.	Part No.	Description
MECHANICAL PARTS		
2	25791117	Chassis Ass'y, Head
3	25791118	Chassis Ass'y, Reel
5	25791119	Plate Ass'y, Idler (B)
6	25711358	Plate Ass'y, Idler
7	25791120	Lever Ass'y, Play
8	25791121	Lever Ass'y, Brake (2)
9	25791122	Plate Ass'y, Take-up
10	25719515	Mount Ass'y, Front Holder (Left)
11	25791007	Mount Ass'y, Front Holder (Right)
13	25764386	Sheet, Nylon
15	25719539	Damper Ass'y
21	25713372	Idler Ass'y, Fast-forward
22	25772329	Spring, Fast-forward Idler
23	25764252	Washer, 3.2 ϕ , Nylon
24	25762356	Felt, Fast-forward
26	25761354	Cushion, Arm
27	25858224	Cap, Rubber
28	25764246	Washer, Nylon, Reel
29	25772254	Spring, Back Tension
30	25764570	Washer, 2.6 ϕ , Reel
31	25712360	Drum Ass'y, Reel
32	25764549	Washer, 1.7 ϕ , Reel
34	25713441	Idler Ass'y, Fast-forward
35	25791025	Motor Ass'y, Main, with pulley
36	22125679	Motor, Reel
37	25751599	Pulley, Motor
38	22701431	Screw, 2.6 ϕ x 6mm
40	25761238	Cushion, Motor
41	25733463	Spacer, Motor
42	25748292	Lever, Brake (1)
43	25727251	Pin, Brake Solenoid
44	25764311	Washer, 3 ϕ , Middle Pulley
45	25782257	Holder, Cassette (Right)
46	25771963	Spring, Cassette Holder
47	25782292	Holder, Cassette (Left)
48	25719578	Cover Ass'y, Mechanism
49	25783184	Plate, Optical
50	25764592	Washer, Nylon, Flywheel
51	25771771	Spring, Idler
52	22701472	Screw, 2.6 ϕ x 13mm
53	25751424	Pulley, Middle
54	25735159	E Washer, 1.5 ϕ
55	25764398	Washer, 2.5 ϕ , Nylon
56	25764400	Washer, 3 ϕ , Nylon
57	25713478	Pulley Ass'y, Fast-forward Middle

Symbol No.	Part No.	Description
58	22703118	E Washer, 2 ϕ
60	25773374	Spring, Brake Lever
61	25771412	Spring, Brake
62	22707350	Screw, 2.6 ϕ x 5mm, DTBID
63	25755378	Belt, Counter
64	25718158	Holder Ass'y, Capstan
65	25764396	Washer, Flywheel
67	25761291	Spacer, Flywheel
68	25717394	Flywheel Ass'y
69	25764486	Washer, 2.5 ϕ , Flywheel
70	25755376	Belt, Fast-forward-rewind
72	25755377	Belt, Take-up
73	25755380	Belt, Drive
74	22703279	E Washer, 3 ϕ
75	25753325	Roller, Head Chassis
76	22707451	Screw, 2 ϕ x 5mm, BID
77	22217331	Head, Record/Playback, HRPT-61
78	22218208	Head, Erase, HET-40
79	25772240	Spring, Head
80	25717422	Roller Ass'y, Pinch
81	25773376	Spring, Pinch Roller (Right)
83	22707151	Screw, 2.6 ϕ x 5mm, BID
84	25771959	Spring, Play Lever
85	22701313	Screw, 3 ϕ x 4mm, BID
89	22707265	Screw, 2 ϕ x 4mm, BID
90	22701432	Screw, 2.6 ϕ x 8mm, BID
92	22701389	Screw, 2.6 ϕ x 3mm, BID
94	22707452	Screw, 3 ϕ x 5mm, BID
95	25783205	Guide A
96	22707461	Screw, 2.6 ϕ x 6mm, Tapping
97	25732324	Guide, Cassette
98	25782258	Lever, Record Lock
99	25757120	Steel Ball, 3 ϕ
100	25774390	Spring, Cassette Slider
101	25771689	Spring, Take-up Lever
102	22707018	Screw, 2.6 ϕ x 6.8mm, with washer
104	22703280	E Washer, 4 ϕ , Play Lever
105	25771898	Spring, Idler
106	22707473	Screw, 2.6 ϕ x 6mm, BID
109	22707475	Screw, 2.6 ϕ x 4mm, BID
110	25773379	Spring, Holder Lever (Right)
111	25773380	Spring, Holder Lever (Left)
113	25772438	Spring, Erase Head
114	25782255	Lever, Cassette Detect (Right)
116	25726489	Sleeve, Erase Head
117	25782256	Lever, Cassette Detect (Left)
118	25782254	Lever, Cassette Holder

Symbol No.	Part No.	Description
121	25761400	Stopper, Head Chassis
122	25723427	Guide, Fast-forward Idler
125	25873199	Counter
126	25755272	Belt, Counter
127	25713506	Pulley Ass'y, Take-up
128	25758026	Pulley, Play
129	25734404	Contact Plate, Torque
130	25772531	Spring, Friction Plate
131	25758028	Retainer, Spring
132	25764580	Washer, Reel Chassis
CABINET PARTS		
301	25817703	Panel Ass'y
303	25837215	Knob, Marker
304	25833404	Guide, Marker Knob
305	25833405	Spacer, Level Knob
306	22703288	Washer, 18.7 ϕ , (Diameter)
307	25735248	C Ring, 16.5 ϕ (Diameter)
308	25816547	Knob, Power
309	25816548	Knob, Memory Counter/Auto Play/Auto Rewind
310	25837212	Knob, Output
311	25837213	Knob, Record (Left)
312	25837214	Knob, Record (Right)
313	25837219	Knob, NR/BIAS/EQ/INPUT
314	25816546	Knob, Timer
315	25837206	Button A, Play/Stop
316	25837208	Button B, Fast-forward/Record
317	25837210	Button C, Rewind/Pause
318	25735234	Spacer, Mechanism Screw
319	25833406	Spacer, Record Knob
322	22703118	E Washer, 2 ϕ
324	22828059	Foot
325	25838105	Top Cover
326	25838104	Head Cover
327	22831553	Dust Cover
328	25838234	Jack Plate
329	25845528	Bush, Power Cord
333	22705022	Rivet, Plastic, 3 ϕ x 5.5mm
334	22705023	Rivet, Plastic, 3.5 ϕ x 5.5mm
335	22707037	Screw, 2.6 ϕ x 6mm, BID, BLK
336	22707066	Screw, 3 ϕ x 6mm, BID, BLK
337	22707170	Screw, 2.6 ϕ x 5mm, TT BID
338	22701237	Screw, 3 ϕ x 6mm, Tapping, BLK
339	22707360	Screw, 3 ϕ x 8mm, Special, BLK
340	22707062	Screw, 4 ϕ x 10mm, FT BID, BLK
341	22707378	Screw, 4 ϕ x 16mm, Special, BLK
342	22707452	Screw, 3 ϕ x 5mm, BID
344	22701326	Screw, 3 ϕ x 8mm, Tapping
349	22707454	Screw, 4 ϕ x 8mm, BID
350	22707151	Screw, 2.6 ϕ x 5mm, BID
351	25791005	Remote Wire Ass'y, Solenoid

Symbol No.	Part No.	Description
356	22950885	Label, Caution
357	22707163	Screw, 3 ϕ x 8mm, BID, BLK
TRANSISTORS, IC'S & DIODES		
Q401, 402, 403, 404, 409, 410, 411, 412, 413, 414, 423, 424, 425, 426		Transistor, 2SA970-BL
Q405, 406, 407, 408, 415, 416, 417, 418, 427, 428		Transistor, 2SC2240-BL
Q419, 420		Transistor, 2SC1627-Y
Q421, 422, 931		Transistor, 2SA817-Y
Q429, 430	22114640	IC, NE645B
Q431, 432, 433, 601, 602, 902, 909, 910, 912, 919, 922, 925, 926, 927		Transistor, 2SC1815-GR
Q603, 604, 905		Transistor, 2SA562-Y
Q605, 606		IC, TA7605AP
Q607, 608, 609	22114641	IC, RC4558-P
Q901, 903, 911, 917, 918, 923, 824		Transistor, 2SC1626-Y
Q904, 906, 920		Transistor, 2SA816-Y
Q907		Transistor, 2SC1959-Y
Q908		Transistor, 2SA950-Y
Q913, 915		Transistor, 2SA496-Y, X
Q914, 916		Transistor, 2SC496-Y, X
Q921, 928		Transistor, 2SA495-Y
Q930		IC, TC9121P
Q932		Transistor, 2SC2068
Q933		Transistor, 2SK30A-Y
D401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412		Diode, M8513A-O
D413, 414,		Diode, 1S1555V

Symbol No.	Part No.	Description
D601, 602, 603, 604, 605, 904, 909, 910, 911, 914, 916, 917, 918, 919, 920, 921, 922, 923, 924, 926, 927, 928, 931, 932, 933, 941, 943, 948, 949, 950		Diode, 1S1555V
D415, 416, 418	22115472	Diode, SEL101S
D417, 419, 915, 925,		Diode, 1S1941
⚠ D901	22115342	Diode, S1RBA10
⚠ D902	22115427	Diode, MI-152
D903, 908, 940		Diode, 02Z5.6A
D906, 907		Diode, 02Z10A
⚠ D912, 913		Diode, 1S1887
D929, 930		Diode, 1N60FD1
D934, 935, 936, 939	22115524	Diode, GRN-OBLONG
D937	22115491	Diode, RED-OBLONG
⚠ D945	22115526	Diode, RD-75E-K
⚠ D946, 947	22115534	Diode, RD-68E-K
COILS & TRANSFORMERS		
L401, 402	22153075	Dolby Filter
L403, 404	22232203	Coil, Choke, 22mH
L405, 406	22232194	Coil, Choke, 22mH
L407, 408, 409, 410, 411, 412, 601, 602	22232193	Coil, Choke, 10mH
L901, 902, 903	22232187	Coil, Choke, 1mH
⚠ P401	22147208	Solenoid, Record
⚠ P901	22147209	Solenoid, Brake
⚠ P902	22147210	Solenoid, Play
⚠ T901	22223708	Transformer, Power, Meter
⚠ T902	22223709	Transformer, Power, Amplifier
ELECTRICAL PARTS		
S401	22195319	Switch, Slide, Input Selector
S402	22195263	Switch, Slide, Record/Playback

Symbol No.	Part No.	Description
S403	22195259	Switch, Slide, Adres/Dolby
S404	22195036	Switch, Lever, Bias
S405	22195086	Switch, Lever, Equalizer
S406	22195307	Switch, Slide, Tape Selector
⚠ S407, 408	22148636	Relay Switch, Muting
⚠ S601, 602	22148654	Relay Switch, Adres
⚠ S901	22146295	Switch, Push, Power
S902	22195219	Key Switch, Rewind
903		Key Switch, Fast-forward
904		Key Switch, Play
905		Key Switch, Record
906		Key Switch, Stop
907		Key Switch, Pause
S908, 909, 910	22195199	Leaf Switch
S911	22195221	Switch, Push, Memory/Auto
S912	22195220	Switch, Rotary, Timer
⚠ S913	22146707	Voltage Selector Switch
	22195222	Switch, Release Lever (S401, 403)
	22195264	Remote Wire, (S401) 400mm
	22195265	Remote Wire, (S403) 200mm
J401, 402	22163541	Jack, Microphone
J403	22163705	Jack, US4P
J404	22163338	Jack, Headphone
J901	22167456	Jack, DIN 7P Socket
Z501	22132529	Bias Oscillator Unit
Z601, 602, 603, 604	22134127	Composite Parts, Resistor
Z605, 606	22134126	Composite Parts, Resistor
Z607, 608	22134124	Composite Parts, Resistor
⚠ N501	22104511	Meter, Plasma-bar
N502	22104532	Plasma Display Tube
N901	22113441	Lamp, 14V, 40mA, Cassette
⚠ E001	22176286	Power Cord, E2ES (TE)
	22176536	Power Cord, BS (TU)
CAPACITORS		
D=±0.5pF, G=±2%, J=±5%, K=±10%, M=±20%, Z=+80% -20%		
ABBREVIATIONS: CD=Ceramic Disk, EL=Electrolytic, MY=Mylar, PS=Polystyrene, PP=Polypropylene, MPF=Metalized Polyester Film		
C401, 402	22380083	PS, 470pF, 500V, J
C403, 404	22370208	MPF, 1mfd, 250V, K
C405, 406	22447479	EL, 4.7mfd, 35V
C407, 408	22445100	EL, 10mfd, 16V
C409, 410	22380083	PS, 470pF, 500V, J
C411, 412	22442471	EL, 470mfd, 6.3V
C413, 414	22380085	PS, 100pF, 500V, J
C415, 416	22445220	EL, 22mfd, 16V
C417, 418	22445470	EL, 47mfd, 16V
C419, 420	22447479	EL, 4.7mfd, 35V
C421, 422	22447479	EL, 4.7mfd, 35V

Symbol No.	Part No.	Description
C423, 424	22372104	MY, 0.1mfd, 50V, K
C425, 426	22445101	EL, 100mfd, 16V
C427, 428	22445101	EL, 100mfd, 16V
C429, 430	22445100	EL, 10mfd, 16V
C431, 432	22447479	EL, 4.7mfd, 35V
C433, 434	22321079	PP, 100pF, 50V, K
C435, 436	22443101	EL, 100mfd, 10V
C437, 438	22380085	PS, 100pF, 500V, J
C439, 440	22447479	EL, 4.7mfd, 35V
C441, 442	22445221	EL, 220mfd, 16V
C443, 444	22445221	EL, 220mfd, 16V
C445, 446	22370208	MPF, 1mfd, 250V, K
C447, 448	22445221	EL, 220mfd, 16V
C449, 450	22445221	EL, 220mfd, 16V
C451, 452	22447479	EL, 4.7mfd, 35V
C453, 454	22321054	PP, 560pF, 50V, J
C455, 456	22447479	EL, 4.7mfd, 35V
C457, 458	22447479	EL, 4.7mfd, 35V
C459, 460	22371472	MY, 4700pF, 50V, J
C461, 462	22445100	EL, 10mfd, 16V
C463, 464	22371273	MY, 0.027mfd, 50V, J
C465, 466	22371562	MY, 5600pF, 50V, J
C467, 468	22371473	MY, 0.047mfd, 50V, J
C469, 470	22445100	EL, 10mfd, 16V
C471, 472	22440207	EL, 0.1mfd, 50V
C473, 474	22480006	EL, 0.33mfd, 50V, K
C475, 476	22488338	EL, 0.33mfd, 50V
C477, 478	22445220	EL, 22mfd, 16V
C479, 480	22445221	EL, 220mfd, 16V
C481, 482	22380088	PS, 390pF, 500V, J
C483, 484	22380088	PS, 390pF, 500V, J
C485, 486	22445221	EL, 220mfd, 16V
C487, 489	22445470	EL, 47mfd, 16V
C489, 490	22447479	EL, 4.7mfd, 35V
C491, 492	22445100	EL, 10mfd, 16V
C493, 494	22380083	PS, 470pF, 500V, J
C495, 496	22445220	EL, 22mfd, 16V
C497, 498	22380092	PS, 47pF, 500V, J
C499, 500	22372683	MY, 0.068mfd, 50V, K
C501, 502	22447479	EL, 4.7mfd, 35V
C503, 504	22370208	MPF, 1mfd, 250V, K
C505, 506	22445330	EL, 33mfd, 16V
C507, 508	22445330	EL, 33mfd, 16V
C509, 510	22321054	PP, 560pF, 50V, J
C511, 512	22321080	PP, 150pF, 50V, K
C513, 514	22371392	MY, 0.0039mfd, 50V, J
C515, 516	22371682	MY, 0.0068mfd, 50V, J
C517, 518	22372103	MY, 0.01mfd, 50V, K
C519, 520	22371562	MY, 0.0056mfd, 50V, J
C521, 522	22372103	MY, 0.01mfd, 50V, K
C523, 524	22371472	MY, 0.0047mfd, 50V, J
C525, 526	22371472	MY, 0.0047mfd, 50V, J
C527, 528	22321079	PS, 100pF, 50V, K

Symbol No.	Part No.	Description
C529, 530	22370208	MPF, 1mfd, 250V, K
C531, 532	22370186	MPF, 0.1mfd, 250V, K
C533, 534	22370208	MPF, 1mfd, 250V, K
C535, 536	22370208	MPF, 1mfd, 250V, K
C537, 538	22370208	MPF, 1mfd, 250V, K
C539, 540	22370208	MPF, 1mfd, 250V, K
C541, 542	22370208	MPF, 1mfd, 250V, K
C543, 544	22370208	MPF, 1mfd, 250V, K
C545, 546	22370208	MPF, 1mfd, 250V, K
C549	22445330	EL, 33mfd, 16V
C550	22443101	EL, 100mfd, 10V
C551	22445330	EL, 33mfd, 16V
C552	22445221	EL, 220mfd, 16V
C553	22372224	MY, 0.22mfd, 50V, K
C554	22372224	MY, 0.22mfd, 50V, K
C555	22370209	MPF, 2.2mfd, 250V, K
C556	22445330	EL, 33mfd, 16V
C557	22445330	EL, 33mfd, 16V
C558	22380101	PS, 3900pF, 200V, K
C601, 602	22447479	EL, 4.7mfd, 35V
C603, 604	22321027	PP, 390pF, 50V, K
C605, 606	22321027	PP, 390pF, 50V, K
C607, 608	22380120	PS, 220pF, 125V, G
C609, 610	22321181	PP, 9100pF, 100V, G
C611, 612	22371104	MY, 0.1mfd, 50V, J
C613, 614	22321157	PP, 4700pF, 100V, G
C615, 616	22372152	MY, 1500pF, 50V, K
C617, 618	22370232	MPF, 4.7mfd, 100V, K
C619, 620	22321079	PP, 100pF, 50V, K
C621, 622	22447479	EL, 4.7mfd, 35V
C623, 624	22372222	MY, 2200pF, 50V, K
C625, 626	22321094	PP, 1500pF, 100V, G
C627, 628	22321094	PP, 1500pF, 100V, G
C629, 630	22361509	CD, 5pF, 50V, D
C631, 632	22349221	CD, 220pF, 50V, K
C633, 634	22321079	PP, 100pF, 50V, K
C635, 636	22362150	CD, 15pF, 50V, K
C637, 638	22447479	EL, 4.7mfd, 35V
C639, 640	22380106	PS, 15pF, 500V, K
C641	22445101	EL, 100mfd, 16V
C642, 643	22370208	MPF, 1mfd, 250V, K
C644	22372333	MY, 0.033mfd, 50V, K
△ C901	22430041	EL, 2200mfd, 35V
C902	22447471	EL, 470mfd, 35V
C903	22370186	MPF, 0.1mfd, 250V, K
C904	22445222	EL, 2200mfd, 16V
C905	22370209	MPF, 2.2mfd, 250V, K
C906	22370186	MPF, 0.1mfd, 250V, K
C907	22480010	EL, 4700mfd, 10V, M
△ C908	22430041	EL, 2200mfd, 35V
C909	22447471	EL, 470mfd, 35V
C910	22445471	EL, 470mfd, 16V
C911	22370209	MPF, 2.2mfd, 250V, K

Symbol No.	Part No.	Description
C912	22370186	MPF, 0.1mfd, 250V, K
C913	22480010	EL, 4700mfd, 10V, M
C914	22370209	MPF, 2.2mfd, 250V, K
⚠ C915	22445222	EL, 2200mfd, 16V
C916	22442471	EL, 470mfd, 6.3V
C917	22342223	CD, 0.022mfd, 50V, Z
C918	22442471	EL, 470mfd, 6.3V
C919	22442471	EL, 470mfd, 6.3V
C920	22445101	EL, 100mfd, 16V
⚠ C921	22430086	EL, 100mfd, 315V, Lag Type
⚠ C922	22340090	CD, 0.0047mfd, 250V, Z
C924	22447471	EL, 470mfd, 35V
C925	22445330	EL, 33mfd, 16V
C926	22442221	EL, 220mfd, 6.3V
C928	22445100	EL, 10mfd, 16V
C929	22447330	EL, 33mfd, 35V
C930	22447100	EL, 10mfd, 35V
C931	22445100	EL, 10mfd, 16V
C932	22448109	EL, 1mfd, 50V
C933	22445330	EL, 33mfd, 16V
C934	22445100	EL, 10mfd, 16V
C935	22343103	CD, 0.01mfd, 50V, M
C936	22372102	MY, 0.001mfd, 50V, K
C937	22372102	MY, 0.001mfd, 50V, K
C938	22372102	MY, 0.001mfd, 50V, K
C939	22447479	EL, 4.7mfd, 35V
C940	22448109	EL, 1mfd, 50V
C941	22445101	EL, 100mfd, 16V
C942	22343103	CD, 0.01mfd, 50V, M
C943	22370208	MPF, 1mfd, 250V, K
C944	22370236	MPF, 1.3mfd, 100V, K
C945	22370208	MPF, 1mfd, 250V, K
C946	22370236	MPF, 1.3mfd, 100V, K
⚠ C950	22370181	MPF, 0.01mfd, 630V, K
⚠ C951	22370181	MPF, 0.01mfd, 630V, K
⚠ C952	22370181	MPF, 0.01mfd, 630V, K
⚠ C953	22370181	MPF, 0.01mfd, 630V, K
C954	22442221	EL, 220mfd, 6.3V
RESISTORS		
All resistors are carbon film 1/4W, $\pm 5\%$, unless otherwise noted. K=1000, M=1000000, G= $\pm 2\%$		
R401, 402	22555683	68K ohm
R403, 404	22555471	470 ohm
R405, 406	22555333	33K ohm
R407, 408	22555393	39K ohm
R409, 410	22555104	100K ohm
R411, 412	22555473	47K ohm
R413, 414	22555270	27 ohm
R415, 416	22555563	56K ohm
R417, 418	22555121	120 ohm
R419, 420	22555682	6.8K ohm

Symbol No.	Part No.	Description
R421, 422	22555332	3.3K ohm
R423, 424	22555103	10K ohm
R425, 426	22555560	56 ohm
R427, 428	22555100	10 ohm
R429, 430	22555100	10 ohm
R431, 432	22555563	56K ohm
R433, 434	22555681	680 ohm
R435, 436	22555561	560 ohm
R437, 438	22547561	560 ohm, 1/2W
R439, 440	22658281	22K ohm, B, Semi-fixed Variable
R441, 442	22547561	560 ohm, 1/2W
R443, 444	22555109	1 ohm
R445, 446	22555222	2.2K ohm
R447, 448	22555471	470 ohm
R449, 450	22555333	33K ohm
R451, 452	22555124	120K ohm
R453, 454	22555124	120K ohm
R455, 456	22555181	180 ohm
R457, 458	22555223	22K ohm
R459, 460	22555183	18K ohm
R461, 462	22555101	100 ohm
R463, 464	22555101	100 ohm
R465, 466	22555331	330 ohm
R467, 468	22555123	12K ohm
R469, 470	22555473	47K ohm
R471, 472	22547561	560 ohm, 1/2W
R473, 474	22547561	560 ohm, 1/2W
R475, 476	22658394	100K ohm, B, Semi-fixed Variable
R477, 478	22555152	1.5K ohm
R479, 480	22555221	220 ohm
R481, 482	22547471	470 ohm, 1/2W
R483, 484	22547471	470 ohm, 1/2W
R485, 486	22555683	68K ohm
R487, 488	22555103	10K ohm
R489, 490	22555332	3.3K ohm
R491, 492	22555473	47K ohm
R493, 494	22555181	180 ohm
R495, 496	22555184	180K ohm
R497, 498	22555274	270K ohm
R499, 500	22555102	1K ohm
R501, 502	22555223	22K ohm
R503, 504	22555473	47K ohm
R505, 506	22555154	150K ohm
R507, 508	22555184	180K ohm
R509, 510	22555682	6.8K ohm
R511, 512	22555332	3.3K ohm
R513, 514	22555103	10K ohm
R515, 516	22555560	56 ohm
R517, 518	22555100	10 ohm
R519, 520	22555100	10 ohm
R521, 522	22547471	470 ohm, 1/2W
R523, 524	22547471	470 ohm, 1/2W

Symbol No.	Part No.	Description
R525, 526	22555151	150 ohm
R527, 528	22555103	10K ohm
R529, 530	22658293	47K ohm, B, Semi-fixed Variable
R531, 532	22658293	47K ohm, B, Semi-fixed Variable
R533, 534	22555224	220K ohm
R535, 536	22555682	6.8K ohm
R537, 538	22555124	120K ohm
R539, 540	22555124	120K ohm
R541, 542	22555333	33K ohm
R543, 544	22555682	6.8K ohm
R545, 546	22555683	68K ohm
R547, 548	22555333	33K ohm
R549, 550	22555183	18K ohm
R551, 552	22555101	100 ohm
R553, 554	22555101	100 ohm
R555, 556	22555331	330 ohm
R557, 558	22555123	12K ohm
R559, 560	22547561	560 ohm, 1/2W
R561, 562	22547561	560 ohm, 1/2W
R563, 564	22555223	22K ohm
R565, 566	22555181	180 ohm
R567, 568	22555151	150 ohm
R569, 570	22555103	10K ohm
R571, 572	22555273	27K ohm
R573, 574	22555330	33 ohm
R575, 576	22555472	4.7K ohm
R577, 578	22555330	33 ohm
R579, 580	22555153	15K ohm
R581, 582	22555103	10K ohm
R583, 584	22658490	220K ohm, B, Semi-fixed Variable
R585, 586	22555221	220 ohm
R587	22655412	50K ohm, A, Variable, Record
R588	22651491	10K ohm, B, Variable, Output
R589	22555471	470 ohm
R590	22555333	33K ohm
R591	22555123	12K ohm
R592	22545223	22K ohm
R594	22545223	22K ohm
R595	22555153	12K ohm
R596	22545221	220 ohm
R597, 598	22555221	220 ohm
R599, 600	22555683	68K ohm
R601, 602	22555473	47K ohm
R603, 604	22555104	100K ohm
R605, 606	22555103	10K ohm
R607, 608	22555103	10K ohm
R609, 610	22550235	2K ohm, G
R611, 612	22550144	33K ohm, G
R613, 614	22550229	3.9K ohm, G
R615, 616	22555124	120K ohm
R617, 618	22555560	56 ohm
R619, 620	22555221	220 ohm

Symbol No.	Part No.	Description
R621, 622	22545106	10M ohm
R623, 624	22555224	220K ohm
R625, 626	22555221	220 ohm
R627, 268	22555221	220 ohm
R629, 630	22555101	100 ohm
R631, 632	22555473	47K ohm
R633, 634	22555101	100 ohm
R635, 636	22555472	4.7K ohm
R637, 638	22555332	3.3K ohm
R639, 640	22555223	22K ohm
R641, 642	22555682	6.8K ohm
R643, 644	22555822	8.2K ohm
R645, 646	22555332	3.3K ohm
R647, 648	22545183	18K ohm
R651, 652	22658281	22K ohm, B, Semi-fixed Variable
R653, 654	22658425	6.8K ohm, B, Semi-fixed Variable
R655, 656	22658425	6.8K ohm, B, Semi-fixed Variable
R657, 658	22658425	6.8K ohm, B, Semi-fixed Variable
⚠ R901	22500256	22 ohm, 2W, Fusible
R902	22540384	1K ohm, 1/2W
R903	22555182	1.8K ohm
R904	22555332	3.3K ohm
R905	22658291	1K ohm, B, Semi-fixed Variable
R906	22555272	2.7K ohm
R907	22555681	680 ohm
⚠ R908	22570254	22 ohm, 1W, Metal Film
R909	22540384	1K ohm, 1/2W
R910	22555123	12K ohm
R911	22658060	2.2K ohm, B, Semi-fixed Variable
R912	22555103	10K ohm
R913	22555681	680 ohm
R914	22547331	330 ohm, 1/2W
R916	22555681	680 ohm
R917	22555153	15K ohm
R918	22555473	47K ohm
R919	22555101	100 ohm
R920	22555682	6.8K ohm
R921	22555222	2.2K ohm
R922	22555472	4.7K ohm
R923	22555123	12K ohm
R924	22547471	470 ohm, 1/2W
R925	22555471	470 ohm
R926	22545152	1.5K ohm
⚠ R927	22500247	120 ohm, 1/2W, Fusible
R928	22555152	1.5K ohm
R929	22547471	470 ohm, 1/2W
R930	22658292	100 ohm, B, Semi-fixed Variable
R931	22563479	4.7 ohm, 1/2W, Composition

A

B

C

D

E

F

1

2

3

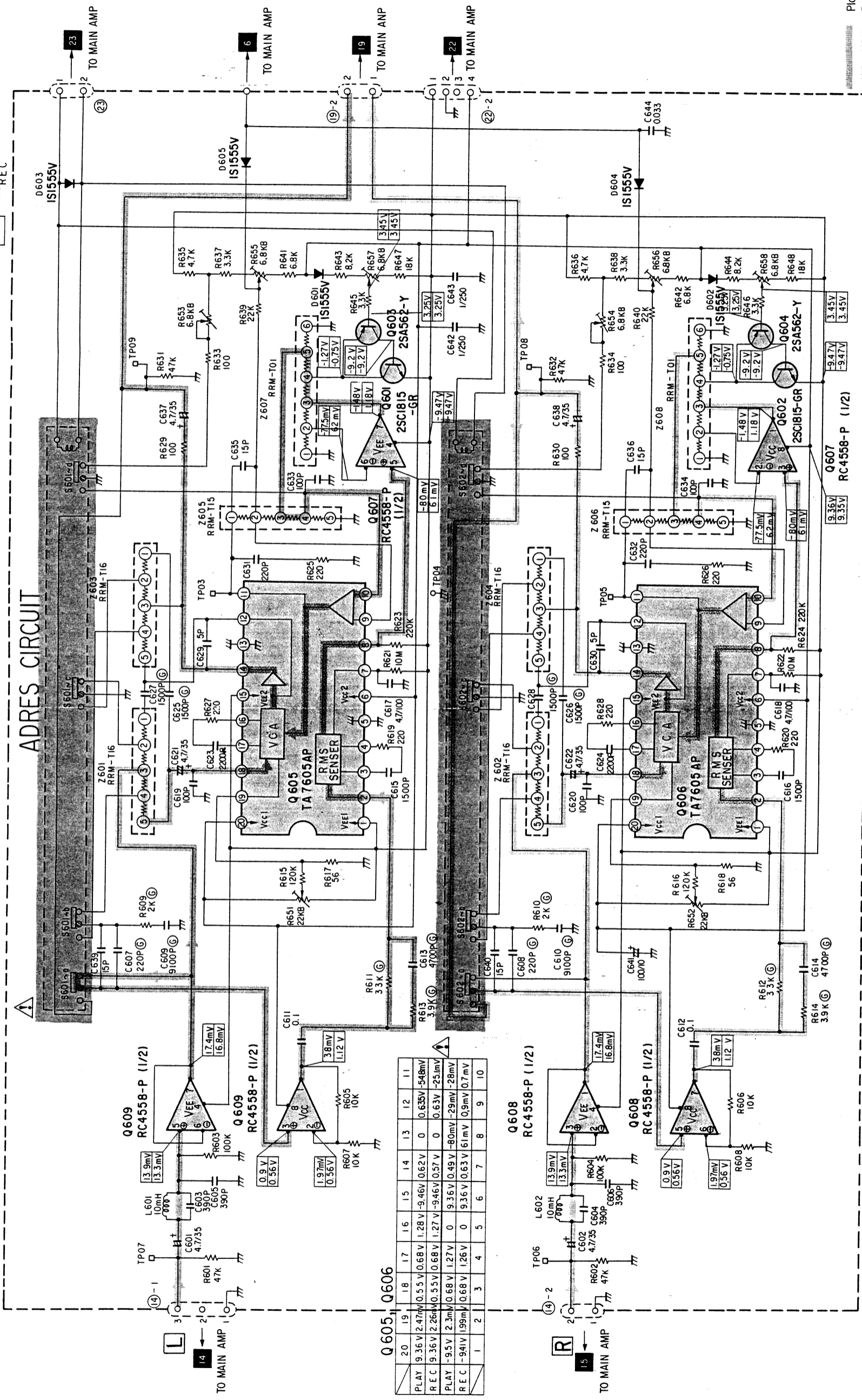
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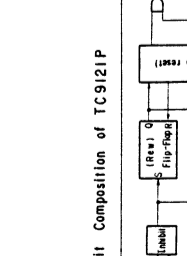
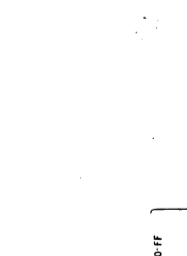
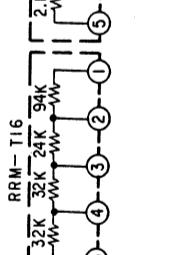
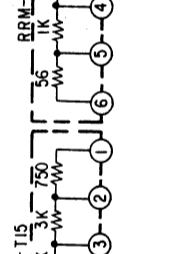
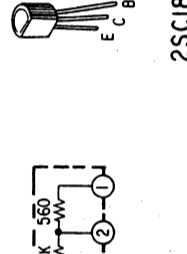
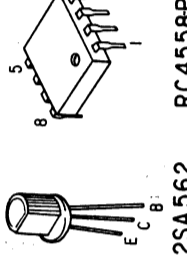
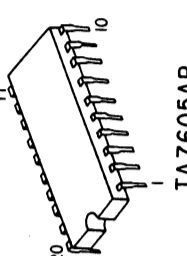
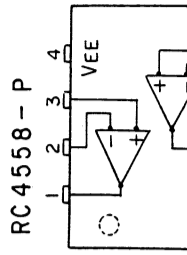
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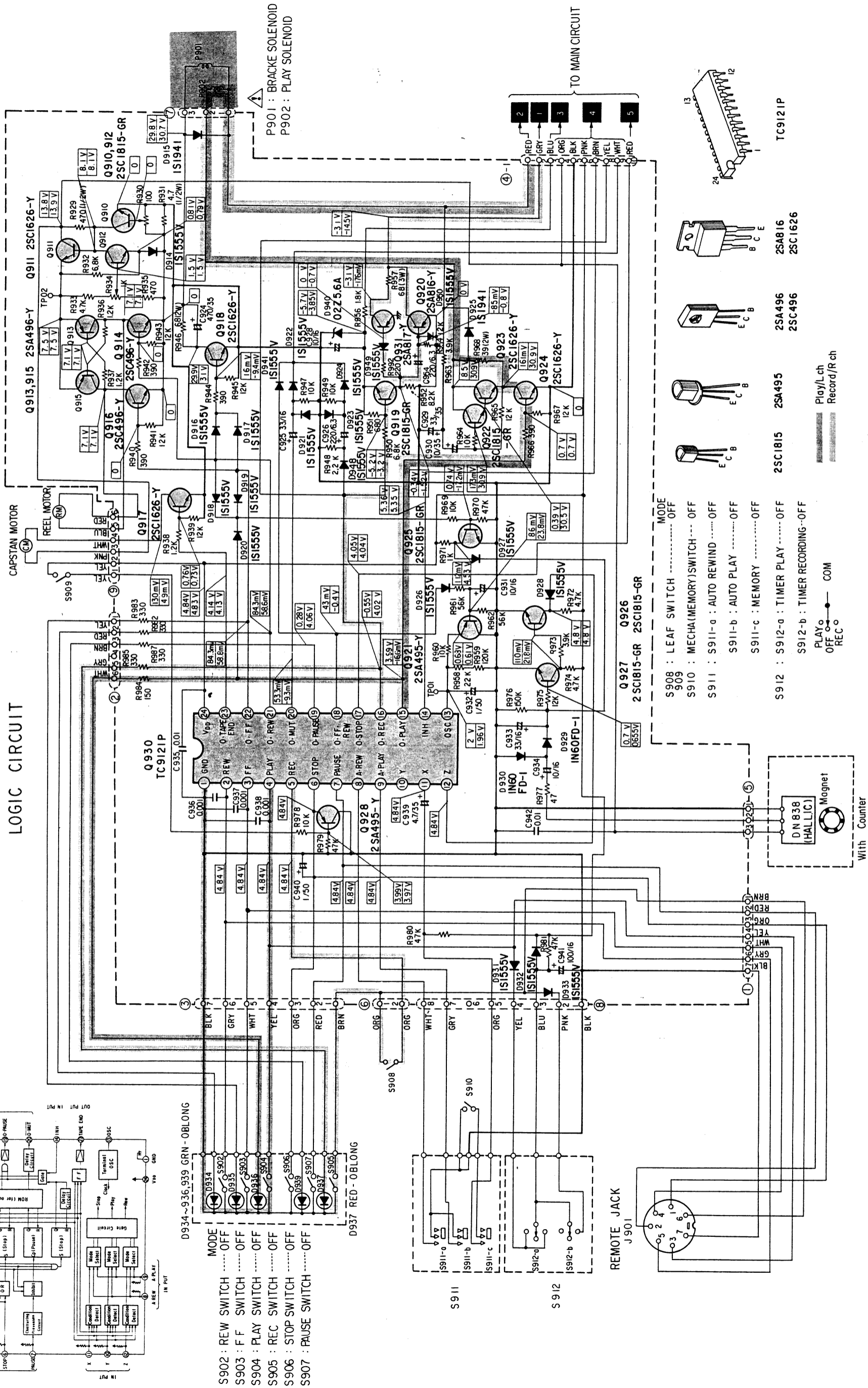
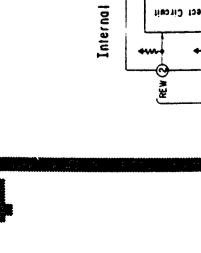
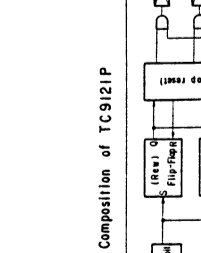
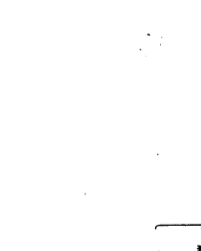
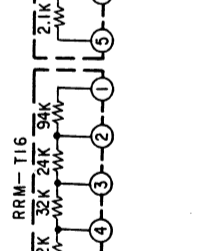
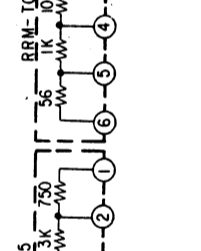
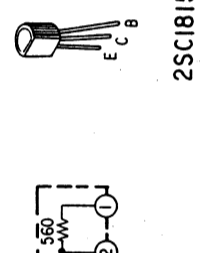
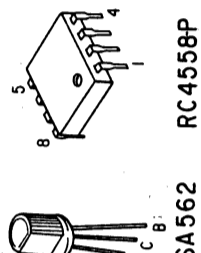
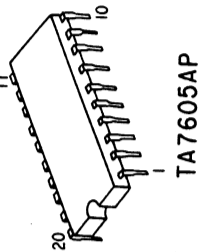
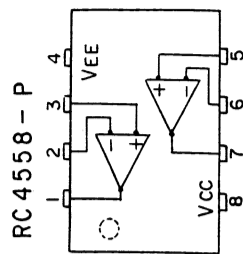


Q605, Q606

	20	19	18	17	16	15	14	13	12	11
PLAY	9.36V	2.47mV	0.55V	0.68V	1.28V	-9.46V	0.62V	0	0.63V	-548mV
REC	9.36V	2.26mV	0.55V	0.68V	1.27V	-9.46V	0.57V	0	0.63V	-251mV
PLAY	-9.5V	2.3mV	0.68V	1.27V	0	9.36V	0.49V	-80mV	-29mV	-28mV
REC	-9.41V	1.99mV	0.68V	1.26V	0	9.36V	0.63V	61mV	0.9mV	0.7mV



Internal Circuit Composition of TC9121P



LOGIC CIRCUIT

D934~936,939 GRN-OBLONG

D937 RED-OBLONG

MODE
S902 : REW SWITCH OFF
S903 : FF SWITCH OFF
S904 : PLAY SWITCH OFF
S905 : REC SWITCH OFF
S906 : STOP SWITCH OFF
S907 : PAUSE SWITCH OFF

REMOTE JACK
J901

With Counter

A

B

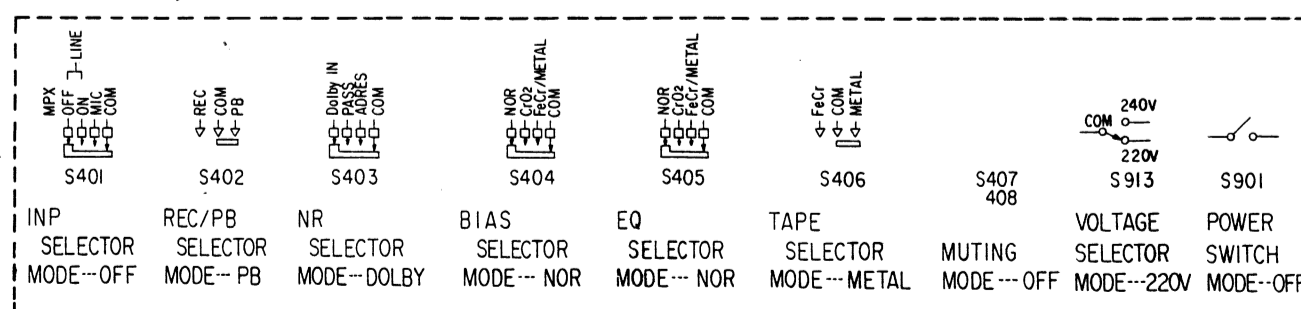
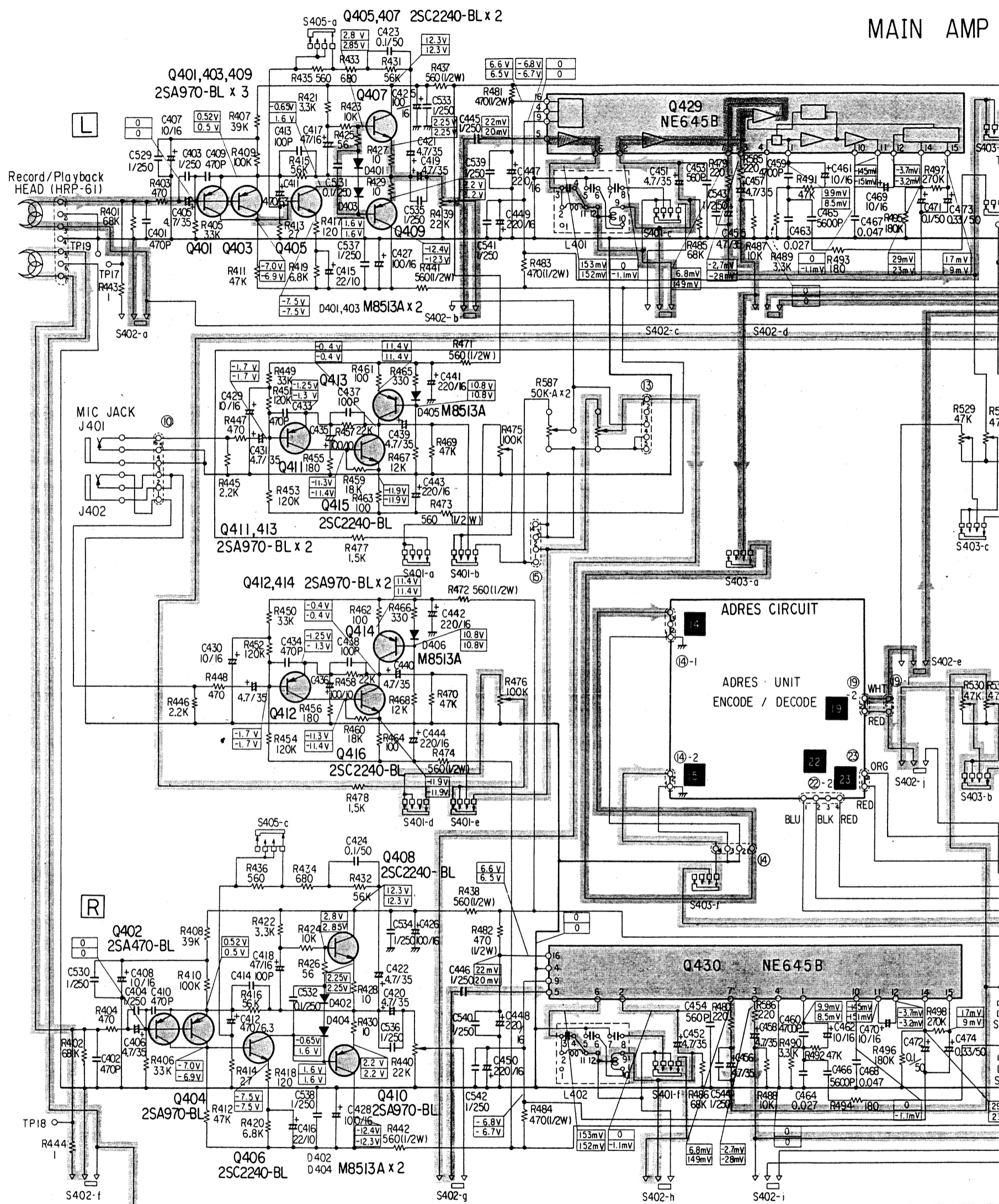
C

D

E

F

MAIN AMP

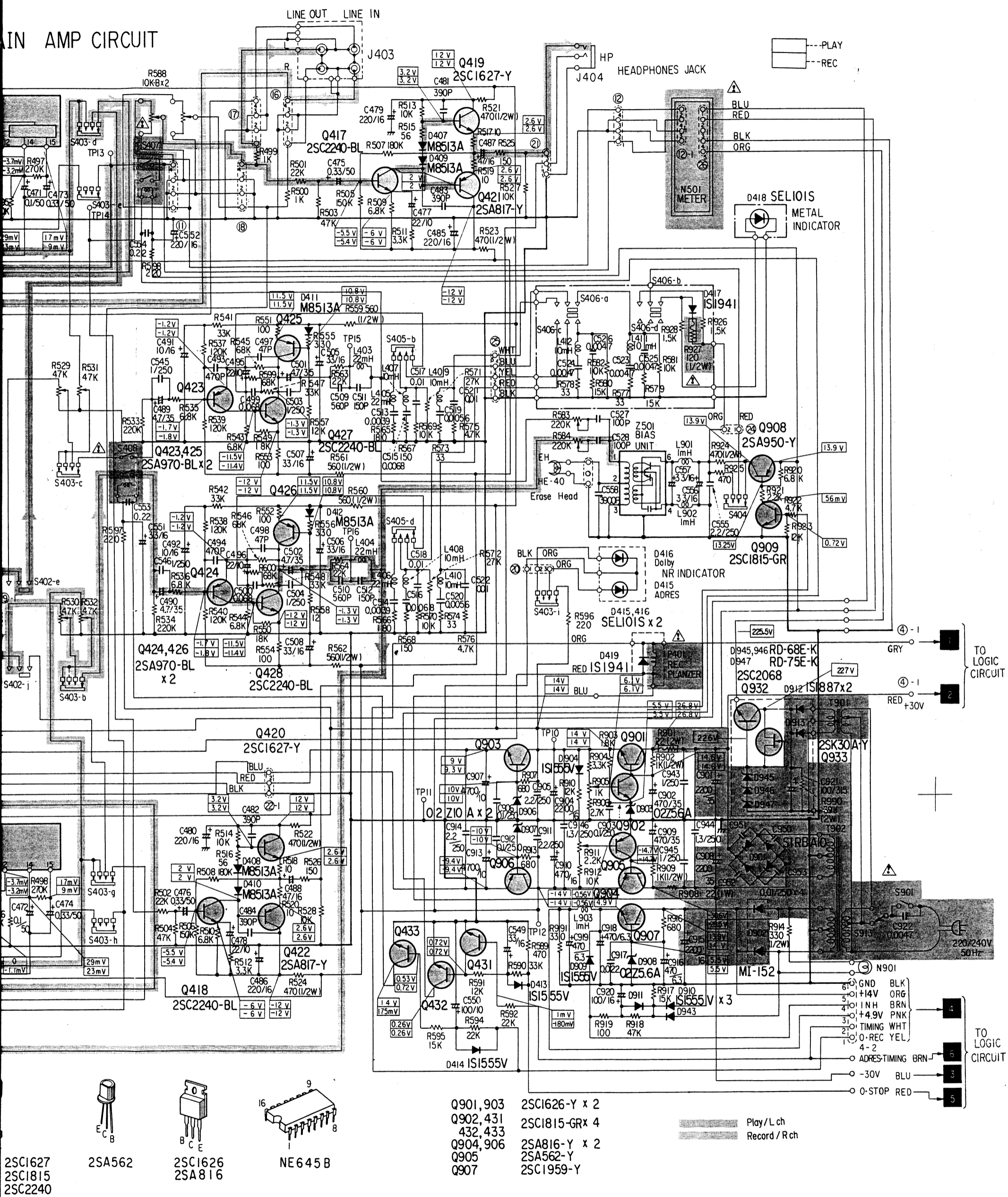


E C B



CAUTION:

MAIN AMP CIRCUIT



Symbol No.	Part No.	Description
R932	22555682	6.8K ohm
R933	22555472	4.7K ohm
R934	22658291	1K ohm, B, Semi-fixed Variable
R935	22555471	470 ohm
R936	22555122	1.2K ohm
R937	22555122	1.2K ohm
R938	22555122	1.2K ohm
R939	22545123	12K ohm
R940	22555391	390 ohm
R941	22555123	12K ohm
R942	22555391	390 ohm
R943	22555123	12K ohm
R944	22555391	390 ohm
R945	22555123	12K ohm
R946	22570305	68 ohm, 2W, Metal Oxided Film
R947	22555103	10K ohm
R948	22555222	2.2K ohm
R949	22555103	10K ohm
R950	22555682	6.8K ohm
R951	22555681	680 ohm
R952	22555822	8.2K ohm
R954	22555123	12K ohm
R956	22555182	1.8K ohm
R957	22570527	68 ohm, 3W, Metal Oxided Film
R958	22555223	22K ohm
R959	22555124	120K ohm
R960	22555103	10K ohm
R961	22555563	56K ohm
R962	22555563	56K ohm
R963	22555392	3.9K ohm
R964	22555103	10K ohm
R965	22555123	12K ohm
R966	22555391	390 ohm
R967	22555123	12K ohm
R968	22570302	39 ohm, 2W, Metal Oxided Film
R969	22555103	10K ohm
R970	22555473	47K ohm
R971	22555102	1K ohm
R972	22555472	4.7K ohm
R973	22555392	3.9K ohm
R974	22555472	4.7K ohm
R975	22555123	12K ohm
R976	22555154	150K ohm
R977	22555470	47 ohm
R978	22555103	10K ohm
R979	22555473	47K ohm
R980	22545473	47K ohm
R981	22555473	47K ohm
R982	22545331	330 ohm
R983	22545331	330 ohm
R984	22545151	150 ohm
R985	22545331	330 ohm
R987	22545331	330 ohm

Aymbol No.	Part No.	Description
R990	22570542	39K ohm, 2W, Metal Oxided Film
R991	22555331	330 ohm
R992	22555221	220 ohm
ACCESSORIES		
	22170398	Junction Cord
	22990374	Cleaner, Head